

Integrating Conservation and Development in Transboundary Landscapes: Looking Back to Move Forward



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Cover photo: Capturing solar energy in high mountains. Jigme Dorji National Park, Bhutan

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Integrating Conservation and Development in Transboundary Landscapes: Looking Back to Move Forward

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Acronyms and Abbreviations

CBC	Community Based Conservation
CBD	Convention on Biological Diversity
CBNRM	Community Based Natural Resource Management
CCL	Cherrapunjee-Chittagong Landscape
CFUG	Community Forestry User Group
EL	Everest Landscape
GLF	Global Landscapes Forum
HKH	Hindu Kush Himalayas
HI-LIFE	Landscape Initiative for Far Eastern Himalayas
HKPLCDI	Hindu Kush Karakoram Pamir Landscape Conservation and Development Initiative
ICDP	Integrated Conservation and Development Project
ICIMOD	International Centre for Integrated Mountain Development
IBA	Important Bird Area
INRM	Integrated Natural Resource Management
IPA	Important Plant Area
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KSLCDI	Kailash Sacred Landscape Conservation and Development Initiative
KLCDI	Kangchenjunga Landscape Conservation and Development Initiative
LTESM	Long-term Environmental and Socio-ecological Monitoring
MDGs	Millennium Development Goals
MEA	Millennium Ecosystem Assessment
NTFP	Non-timber Forest Products
PES	Payment for Ecosystem Services
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RMC	Regional Member Countries
SAARC	South Asian Association for Regional Cooperation
SACEP	South Asia Co-operative Environment Programme
SAWEN	South Asia Wildlife Enforcement Network
SDGs	Sustainable Development Goals
TBL	Transboundary Landscape
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WL	Wakhan Landscape
WWF	World Wide Fund for Nature

Executive Summary

After the Third World Parks Congress and the Earth Summit, a convergence of efforts for conservation and development has gained momentum globally. With increasing understanding about the scale of interactions of the physical, biological and social realms, it is widely realized that joint planning, and bilateral, regional, and international cooperation are needed for managing social and ecological systems. For these reasons, the landscape approach has gained wider attention, as it entails viewing and managing multiple land uses in an integrated manner through adaptive management and engagement of multiple stakeholders at the local, national, and international levels.

The conservation policies of the countries in the Hindu Kush Himalayas (HKH) have gradually shifted away from exclusionary and sectoral approaches and towards inclusive and integrated ones. However, the debate whether to prioritize development or conservation is still ongoing because fighting poverty and hunger can sometimes come at the cost of conservation, and this creates conflict in respective HKH countries. In addition, HKH countries are also experiencing the adverse impacts of climate change and lack technical, financial and institutional capacity to tackle these challenges. Any efforts undertaken unilaterally that neglect the transboundary nature of the issues may exacerbate socio-political and economic instability, and security threats. Considering these realities, governments in the region would gain by collaborating to harmonise their policies and integrate environmental concerns into development policies. Though appealing and necessary, these efforts of harmonization and integration are challenging, mainly because trade-offs occur while reconciling objectives, interests, and values of heterogeneous communities.

In this context, we aim to improve our understanding of possible ways to integrate conservation and development in transboundary landscapes of HKH region based on review of various documents across the region. Acknowledging trade-offs for achieving twin goals for stakeholders sets the stage for negotiation and collaboration to draw multilateral agreements on particular strategies. The strategies for effective integration at different scales include engaging stakeholders and political organizations, capacity building of stakeholders, establishing nested collaborative structures, strengthening existing institutions and institutional linkages within and across international borders, development of market based incentives for local communities and building partnerships with the private sectors. Furthermore, informal cooperation and networking between local communities and with government officials of different countries is essential to build trust and ease tensions.

Background

The idea of safeguarding global biodiversity by establishing interconnected protected areas is being promoted under the slogan ‘nature needs half’ (Wilson, 2016). This radical conservation rhetoric may be in agreement with the Millennium Ecosystem Assessment Report (MEA, 2005), which for the first time revealed that global ecosystems are degrading fast and restoration must be rigorously pursued. Moreover, Sustainable Development Goals 2030 endorsed in 2015 clearly prioritize ending poverty, hunger and gender inequity and also broadly touch upon conservation issues (UNGA, 2015). This also indicates the need for an approach that strikes a balance between conservation and development (Vira, 2015). The question of whether to prioritize development or conservation has been debated for a long time.

In the context of forests, which are an ecosystem as well as a renewable resource, global discourse often regards “conservation and development” as twin goals, i.e., one cannot be achieved without the other. It is obvious that developing countries find it difficult to aim and plan for both simultaneously, since poverty and hunger as manifested in SDGs (2030) still constitute a major development challenge. On the other hand, natural resources form the very basis on which growth can be planned for such economies. For these reasons, it is imperative for the developing countries to conserve biological diversity to ensure a continued trajectory of development. Thus, in some ways the choice between conservation and development represents a choice between long-term and short-term growth, making it a contested issue.

Discourses of conservation and development have shifted from centralized and experts-based to participatory and community-based, reductionism to systems view, and disjointed to integrated approach. In view of the widely acknowledged limitations of the sectoral approach and the scarcity of resources resulting from climatic, social, economic and political changes, there is growing emphasis on the integration of natural and social sciences (Godfray et al., 2010; Kutter and Westby, 2014). This has opened up space where opposing views

Women collecting fuel wood in a community forest (Godavari, Nepal)



can be reconciled. After MEA (2005), the ecosystem services framework has been discussed by a wide range of stakeholders seeking to balance human needs with the functioning of ecosystems (Ingram et al., 2012). Similarly, the landscape approach¹ is now regarded as a holistic approach that accounts for synergies and trade-offs between conservation and development interventions at a larger scale (Reed et al., 2016). In a transboundary context, where complex trade-off issues related to cultural services, bio-corridors of flagship species and illegal wildlife trafficking can be of prime significance, a landscape approach seems more appropriate, as is frequently the case for the Hindu Kush Himalayas (HKH).

In this context, the aim of the paper is to improve the understanding of possible ways to integrate conservation and development in transboundary landscapes of the HKH. For the purpose, the paper discusses objectives and approaches and examines the need to integrate conservation and development in the HKH. It analyses challenges and describes some of the attempts of the government in the region to integrate the two in their policies. Further, it showcases some of the lessons learnt and good practices for integrating conservation and development in the Transboundary Landscape programme of ICIMOD.

¹ Further discussion of this concept arrives later in the paper.

Defining Conservation and Development

For a considerable period of time, economic development took precedence over biodiversity conservation the world over. Till the early 70s, environmental impacts of development were not a major consideration for development planners. The priority was infrastructure development, power generation and whatever else that was needed for maintaining high industrial growth, and improving productivity of agriculture (Adams et al., 2004). In 1972, with the publication of *Limits to Growth*, scholars, development practitioners and policy makers felt the need to make conscious efforts towards conservation. Since then there has been a broad consensus that biological diversity is critically threatened, and efforts are going on for biodiversity protection and conservation.

There are mainly two schools of thought that differ over objectives, approaches, the role of humans and measures for reducing the extinction rate of biodiversity (summarised in Table 1). Traditional conservationists as well as believers of deep ecology have advocated stringent actions to preserve wilderness mainly for its intrinsic values (Sarkar, 1999; Leader-William et al., 2011; Soule, 2013). One extreme model that has been adopted and advocated towards this goal is establishment of national parks and other protected areas, with or without consultation with local people, which has been a standard strategy for biodiversity preservation worldwide (Noss et al., 2012; Wuerthner et al., 2015; Wilson, 2016).

Table 1: Comparison of opposing views on conservation

	Traditional conservationist	Social conservationist
Values	Intrinsic, aesthetic	Instrumental
Objective	Strict protection of biodiversity and ecosystems	Co-existence of human and biodiversity
Approach	Eco-centric, bio-centric top-down	Anthropocentric, bottom-up, rights based approach
Threats to biodiversity	Exploitation of resources for economic development	Poverty, inequity, marginalization, lack of alternative livelihood options
Role of humans	Destroys nature	Allies and agents of nature conservation, values local knowledge
Measures	Establishment of protected areas, armed patrol, exclusion of local communities	Participatory management, reorient resources use pattern, compensation, direct payments, incentives - financial/non-financial benefits
Criticism	Imposes social and economic costs on local communities, ignores traditional use rights of communities, requires advanced management capacities and finances	Idealistic, politically motivated, digresses from protection of biodiversity, inequitable distribution of benefits, offers unrealistic alternative livelihood options
References	Terborgh (1999); Sarkar (1999); Leader-Williams et al., (2011); Soule (2013)	WCED (1987); Hughes and Flintan (2001); Roe and Elliot (2006); Miller et al., (2011); Tallis and Lubchenco (2014)

Brockington and Igoe (2006) have documented ample evidences from across the world to show that establishment of protected areas has negative impact on the local communities as they are often evicted from their settlements and that too without receiving any compensation, barred from using resources that are essential for their livelihood. As a result, local communities are exposed to myriad physical, economic and social risks (Cernea and Schmidt-Soltau, 2006) and at the same time, they have to go without many fruits of development e.g., road connectivity and other infrastructure development due to various formal and informal restrictions imposed in such areas (Ghate and Beazley, 2007; Buscher et al., 2016). All those problems exacerbate poverty, leading to conflicts between government institutions and local communities (Brandon and Wells, 1992). This makes it difficult to obtain the community's support for conservation.



Shelterbelt trees protect agricultural fields from sand dunes (Bamiyan, Afghanistan)

Although it causes many social and economic problems, exclusive protection through parks has been found to be inadequate for protecting ecosystems and associated species (Newmark, 1996). Stringent protection measures are effective only within the protected area boundaries (Bruner et al., 2001; Naughton-Treves et al., 2005; Porter-Bolland et al., 2012), while many species inhabit areas outside the boundaries (Rodrigues et al., 2004). Moreover, government agencies, especially in developing countries, are often seen to lack capacity to manage protected areas (Emerton et al., 2006), which enables local communities to circumvent restrictions in order to meet their basic needs (Sachs and Reid, 2006), to harvest a large amount of resources for fear of not getting the opportunity later (Jim and Xu, 2002), or to retaliate against the denial of their user rights (Watts and Faasen, 2009), all of which escalate resources degradation.

On the contrary, social conservationists indicate that if communities are made partners in planning and management of forests in general and conservation areas in particular, it could lead to a better situation. This is possible because in the South Asian context and especially in the Himalayas, people are known to have lived in proximity to forests for generations. There are several traditional institutions to indicate that communities had well-thought-out rules and structures to ensure sustainable use of resources (Roy Burman, 1985; Gadgil and Berkes, 1991). Even to this day there are instances of communities living symbiotic life, close to nature without being exploitative or commercial (Ghate et al., 2013). It is also found that when the users of a common property resource organize themselves to devise and enforce some of their own basic rules, they tend to manage local resources more suitably than when the rules are externally imposed on them (Wade, 1994; Tang, 1992; Baland and Platteau, 1996; Khan, 2008; Mishra, 2008).

Recognizing the social, economic and ecological implications of national parks and other protected areas, the Third World Parks Congress in 1982 and the Earth Summit in 1992 agreed that the needs of local communities must be considered for the conservation and management of resources. Moreover, the Convention on Biological Diversity (UN, 1992) not only acknowledged the aesthetic, cultural and other utilitarian values of biological diversity

and its components but also pleaded to its parties for sustainable use of biodiversity and natural resources without degrading their capacity to perpetuate (Tallis and Lubchenco, 2014).

Since 1980s, donors and governments have supported various forms of community-centred conservation approaches, such as integrated conservation and development program (ICDP), community based conservation (CBC), community based natural resource management (CBNRM), integrated natural resource management (INRM) etc. These have evolved with the aim of integrating conservation and development goals. In a similar vein, performance-based direct payment mechanisms have also evolved, which directly provide incentives to communities to forego any environmentally destructive practices and to adopt environment-friendly measures such as Payment for Ecosystem Services (PES) schemes (Wunder, 2005). There have been attempts to combine community-centred conservation models with direct payment mechanisms for increasing benefits to local communities as well as for improving the cost efficiency of programs (Wunder et al., 2008; Rai et al., 2016). The success of community forestry in Nepal, joint forest management in some parts of India and Pakistan, social forestry in Bangladesh, and other models of participatory natural resources management in Bhutan and China give strength to the conviction that inclusive management, where conservation and improved well-being are twin goals, is definitely a goal worth pursuing.

Concurrently, there have been many attempts in the discourse of development to define the development pathways (summarised in Table 2). The World Conservation Strategy (IUCN-UNEP-WWF, 1980) and the Brundtland Commission report (WCED, 1987) urged for a balance between social, environmental and economic factors, which has shaped the development strategies of government and international aid agencies' programmes such as community-centred conservation programmes. Worldwide promulgation of the community-centred conservation programmes and direct payment schemes show wide acceptance of conservation efforts that meet developmental aspirations of communities and development strategies that ensure sustainability of natural resources (Wunder, 2008; CBD, 2011).

Table 2: Development concepts and their objectives

Concept	Objective	Reference
Economic development	Economic growth	Radwam and Alfithan, (1978) as cited in Keeton (1984)
Anthropocentric development	Fulfillment of basic needs, freedom to express, right to work and realization of one's potential	The Cocoyoc-Declaration (1975)
Sustainable development	Balancing between social, economic and environmental factors	IUCN-UNEP-WWF (1980), WCED (1987)
Sustainable livelihood	Human, physical, financial, natural, social assets	Chambers and Conway (1991); DFID (1999)
Human well-being	Security, availability of basic materials, health and good social relations	MEA (2005)

What is a Transboundary Landscape Approach?

As momentum for the convergence of efforts for conservation and development increases, there is a growing consensus on the need to match the scale of efforts with ecosystems rather than with administrative and political boundaries (Dallimer and Strange, 2015). The implications of human interventions on complex interactions of natural processes extend beyond local, national and international jurisdiction, and cannot be managed without multilateral cooperation, joint planning and action (Ahern and Cole, 2012; Kark et al., 2015).

In such a scenario, the landscape approach entails viewing and managing multiple land uses in an integrated manner, considering both the natural environment and the human systems that depend on it (Wiens, 2009; Sayer et al., 2013; Freeman et al., 2015). The landscape approach has gained the attention of academics, scientists and practitioners as it has emerged from lessons learned over a long period time in resolving conflicts arising from competing demands for land for agricultural production, biodiversity conservation, rural and economic development and poverty alleviation (Pfund, 2010). The approach has been used in designing more effective responses to climate change and to improve governance of natural resources.

Landscape approach means different things to different people with varied interests and backgrounds. Though there is no single definition of the approach, it has certain salient characteristics. Landscape approach has become an umbrella term for different initiatives aimed at managing a mosaic of land use units at the landscape scale to harness multiple benefits in an integrated manner, through adaptive management and engagement of multiple

Porters carry goods to Nepal from China (Humla, Nepal)



actors and stakeholders at the local, national or international level (Scherr and McNeely, 2008; O'Farrell and Anderson, 2010; Pfund, 2010; Milder et al., 2010; Ahern and Cole, 2012; Sayer et al., 2013; Kotru et al., 2014). According to CIFOR (2016), the landscape approach enables stakeholders:

- To understand the effects of land use and negotiate their competing demands;
- To assess exogenous and endogenous factors that determine land uses at different levels;
- To determine benefits derived by different groups from different land uses;
- To leverage investments from various sources for sustainable development in the landscape; and
- To integrate policies across sectors.

The concept of “ecosystem approach” has also evolved simultaneously in recent years. It is argued that the term ‘landscape’ is more holistic as it is a geographical construct and includes the biophysical, social, cultural, political and psychological aspects of a place, as opposed to ‘ecosystem’, which is only a biophysical construct. However, some suggest that the principles of the landscape approach and the ecosystem approach are similar and can be used interchangeably (Shepherd, 2008; Sayer et al., 2013).

Frontier areas have become a haven for the world’s endangered species (Westing, 1993) because these areas are less disturbed by any development efforts (Agrawal, 2000). Consequently the number of transboundary conservation areas and protected areas along international borders has substantially increased – from 59 in the late 1980s to 227 in 2007 (Lysenko et al., 2007). IUCN added Transboundary Conservation and Development Area to its conservation initiative typologies, realizing that there are landscapes and/or seascapes beyond the administrative jurisdiction of two or more countries, which contribute to conservation of biodiversity and cultural heritage as well as to the promotion of social and economic development (Sandwith and Lockwood, 2006). The Kailash Sacred Landscape has been featured as a ‘Landmark Initiative’ (UNGA, 2013; UNGA 2016) and has features of the Transboundary Conservation and Development Area category of IUCN (Vasilijevic, et al., 2015).

With increased awareness of the scale of ecological processes and the implications of divergent land use, social and economic policies on conservation and development, it is widely realized that bilateral, regional and international cooperation is needed to achieve the dual goals (Tang et al., 2011; Linnell et al., 2016). Several instruments such as conservation conventions and treaties (e.g., Convention on International Trade in Endangered Species, Convention on Migratory Species), regional agreements and memorandums of understanding between countries have been devised to foster different levels of cooperation among governmental and non-governmental institutions of different countries (Zbicz, 1999) at different scales to enhance ecological, socio-cultural, political, financial benefits (Kark et al., 2015; Vasilijevic, et al., 2015).

Existing literature enlists the ecological, socioeconomic, cultural, political and financial benefits of transboundary landscape initiatives (Vasilijevic, et al., 2015), but more research is needed to confirm those claims (Buscher and Schoon, 2009). Transboundary cooperation has been found to be effective in controlling transboundary air and water pollution (Gerlak, 2004; Bergin et al., 2005), regulating river system (Brunner, 2011), maintaining corridor connectivity and viable population of migratory species (Blanco, 2013), sharing technical expertise for park management (McCallum et al., 2015), restoring peace between conflicting states (Barquet et al., 2014), strengthening linkages between communities (Manyane, 2016), facilitating tourists’ movement (Munthali, 2007), and controlling trafficking of wildlife and boosting local trade (World Bank, 2007).

Need for Integration in the Hindu Kush Himalaya

Integration of conservation and development at the transboundary landscape level in the HKH region is essential for numerous reasons. The HKH region comprises varied landscapes and climatic conditions suitable for great varieties of genes and species of flora and fauna, many of which are endemic to the region (Myers et al., 2000) and enlisted under Biodiversity Hotspots, Endemic Bird Areas, Mega Diversity Countries, and Global 200 Eco-regions (Brooks et al., 2006). The landscape supply multiple ecosystem services, viz. water, food, fibre, wood products, etc. (Pant et al., 2012; Molden et al., 2014; Sharma et al., 2015) and also regulate the climate (Messerli and Ives, 1997). The inhabitants of the diverse landscapes have embraced a wide range of lifestyles, building a close transboundary relationship with each other and the environment, as manifested in the rich cultural diversity of the region (Schild and Sharma, 2011).

The region comprises transboundary river basins as well as protected areas, along with multi-functional land use, where numerous ecosystems interface at different scales and provide services to more than 1.3 billion population, including people living in the downstream river plains. Many large mammals and endangered species such as the Asian elephant and snow leopard move across international borders (Basnet, 2003; Rosen and Zahler, 2016), which highlights the need for transboundary cooperation for managing wildlife habitat, monitoring populations, mitigating human-wildlife conflicts and controlling poaching and illegal trade.

For a region of such significance, the HKH has faced environmental degradation at an alarming rate (Chettri and Sharma 2016). For instance, a study of 14 transboundary conservation areas in the Kanchenjunga landscape showed that they are becoming more fragmented and isolated (Chettri et al., 2007) due to drivers of change that are transboundary in nature and require global support, viz. withering of traditional institutions, population growth, over exploitation of natural resources, climate change and pollution (Messerli and Ives, 1997; Pandit et al., 2007; Chettri and Sharma, 2016; Pandey et al., 2016).

On the other hand, although the HKH landscape provides ecosystem services of global importance and contributes significantly to the economic development of the countries in the region (Table 3), majority of the mountain population in the region live below the poverty line and lag behind the plains population on different indicators relating to access to basic facilities, accessibility and household characteristics (Hunzai et al., 2011). Therefore, especially in the least developed countries in the HKH region, such as Bhutan, Afghanistan, Nepal, Myanmar, and Bangladesh, a purely ecological perspective is not sufficient for addressing multiple biodiversity and ecosystem

Table 3: GDP of regional member countries and poverty distribution in the plains and mountain areas of HKH countries

Country	GDP (billion USD)		Population living below poverty line (%)		
	2001	2015	Mountains	Plains	Overall
Afghanistan	2.46	19.33	42	22	33
Bangladesh	53.99	195.07	46	37	37
Bhutan	0.47	2.05	34*	20**	23
China	1,332.20	11,007.72	NA	NA	NA
India	493.95	2,095.39	34	NA	36
Myanmar	NA	62.60	50	29	32
Nepal	6.00	21.19	40	28	31
Pakistan	72.31	271.05	32	24	25

Note: *Eastern Bhutan; **Average of Western, Central and Southern Bhutan; NA (not available)
Source: ^aWorld Bank (2016), ^bHunzai et al., (2011)



A Marco Polo sheep fatally caught in a border fence on the Afghan-China-Tajikistan border

challenges because these are linked with social and economic issues (O'Farrell and Anderson, 2010). The silo programmes that focus only on conservation have often been criticized for providing limited economic benefits to poor communities situated in or near the ecosystems, though they bear high costs of conservation measures (Wells, 1992; Ghate, 2003).

Moreover, climate change will have serious adverse impacts on development programs such as water supply, hydro-electricity generation and food production and health (Agrawala et al., 2003; Klein et al., 2005) because majority of the countries in the region have limited technical, financial and institutional capacity to tackle the challenge (Stern, 2007). As the level of economic development in the region varies across the countries, they have different levels of capacity to adapt to climate change (Shrestha et al., 2015). The regional economic disparity and differentiated vulnerability to environmental risks raises security threats (Jha, 2004). Continuation of 'business as usual' development strategies will not be sufficient (UNEP, 2013) for dealing with the problems.

Considering these realities, governments in the region should collaborate to harmonise their conservation and development policies and programmes; otherwise climate change and persisting inequalities between and within countries will undermine collective socio-political and economic stability as well as the achievements and progress made on many MDGs targets (UN, 2015a). Further, these realities reveal the need to integrate climate change adaptation and mitigation and other environmental policies into development policies and programmes (Klein et al., 2005).

Key Challenges and Strategies

Efforts to translate conservation and development from words into action are likely to face many challenges (Stocking and Perkin, 1992; Abbot et al., 2001) and the transboundary dimension adds to the complexity (Katerere et al., 2001; Buscher and Schoon, 2009). Acknowledging the complexity, the first part of the section discusses the common challenges for integrating conservation and development at country and transboundary scale, followed by discussion on challenges specifically for transboundary landscape initiatives (Table 4). The last section highlights some of the strategies adopted to integrate conservation and development at local, regional and transboundary scale.

Table 4: **Challenges in integrating conservation and development**

Common	Transboundary landscape
Political <ul style="list-style-type: none"> Trade-offs between conservation and development goals Heterogeneity of communities and their aspirations - social, economic, political, religious 	Political <ul style="list-style-type: none"> Unequal distribution of benefits and costs Sovereignty issues - border disputes, national security
Institutional <ul style="list-style-type: none"> Poor capacity of national and local agencies to integrate conservation and development Poor coordination between agencies Hierarchical social structure Lack of policies ensuring environmental protection in development projects at different scales 	Institutional <ul style="list-style-type: none"> None or poor institutional coordination and cooperation between countries for planning, and data sharing Mismatched laws, policies and institutional structure across borders for transboundary cooperation
Economical <ul style="list-style-type: none"> Budget constraints for long-term support to the communities 	Economical <ul style="list-style-type: none"> High transaction costs for dialogue, collaboration, and monitoring of compliance of agreements
Knowledge gap <ul style="list-style-type: none"> Uncertainty of natural systems and consequences of development on conservation and vice-versa Limited knowledge base on socio-ecological system 	Knowledge gap <ul style="list-style-type: none"> Limited knowledge base on the benefits and costs of transboundary cooperation
Miscellaneous <ul style="list-style-type: none"> Efforts to build trust between countries, local communities and conservation agencies and within local communities are time consuming. 	Miscellaneous <ul style="list-style-type: none"> Not many transboundary best practice learning available Building transboundary cooperation has longer gestation periods to demonstrate success

Common Challenges

Balancing conservation and development is more socially and politically challenging when tangible benefits derived from the conversion of ecosystems to other alternative uses are higher (Hirsch and Brosius, 2013), or when stakeholders are socially, economically, religiously or culturally heterogeneous (Erg et al., 2012). Developing complementary strategies for conservation and development that reconcile the interests, values and capacity of heterogeneous communities in a cost effective manner is challenging (Spiteri and Nepal, 2006; Jack et al., 2008). Hence, trade-offs between conservation and development goals is inevitable (Roe and Walpole, 2010) and 'win-win' solutions are often elusive (Roe and Elliott, 2006; Barrett et al., 2011; Hirsch and Brosius, 2013).

The trade-offs have to be understood as socio-ecological systems are complex, contextual, non-linear, and in most cases far from clear (Roe and Walpole, 2010). It is important to realize that reaching agreement on trade-offs is often a tedious and complex negotiating process requiring attention to political, social, economic and ecological contexts at different spatial and temporal scales (McShane et al., 2011). However, only a few institutions are capable of managing trade-offs (Barrett et al., 2001), possibly because institutions focus solely on development or conservation issues (Brown, 2003) and lack a multidisciplinary team for implementing programmes that integrate dual goals (Hough, 1994; Gerritsen, 1998). Conventionally, governmental and non-governmental agencies have



Locals slash and burn trees to clear forest for agriculture (Nagaland, India)

been working in isolation within their 'disciplinary silos' and sectors, therefore, coordination between them is either poor or absent (Reed et al., 2016).

A review of projects aimed at integrating conservation and development at local, national and transboundary scales concluded that those projects are more likely to have lasting positive impact on ecology, attitude, behaviour and economic status of the communities when stakeholders from the grassroots to central level engage meaningfully from the early phase of planning, implementation and monitoring of the programmes and benefits and costs are distributed equitably (Zbicz, 2003; Berkes, 2004; Spiteri and Nepal, 2006; Brooks et al, 2013; Lim, 2015; Bouamrane et al., 2016). However, hierarchies that exist in many societies are a barrier to inclusive participation and equitable benefit sharing.

Although notion of participation, inclusiveness and equity have been accepted at the policy level in most of the countries in South Asia, it is sometimes completely missing in spirit at the grass roots (Sundar, 2001; Ghate, 2008) and seems to be a difficult contention. Kanel and Acharya, (2008) highlighted that lack of skills of forestry staffs on gender and equity issues and their traditional 'command and control' attitude and behaviour were constraints for institutional transformation at grassroots level. Similarly, the communities also distrusted forest staffs and found it difficult to acclimatize to the idea of being an equal partner in managing a resource.

Long-term support of the facilitating agencies is essential to transform generational attitudes of communities and build trust, especially among those who share a history of injustice, discrimination and conflicts (Li, 2002). However, due to high dependency on external donors for financial support, it is challenging to ensure long-term support to the communities (Spiteri and Nepal, 2006).

Lack of policies, legislative documents and institutional arrangements pose a challenge in ensuring environmental protection in infrastructure development projects. In Myanmar, for example, huge investments have been made in commercial logging, hydro-electricity, mining and fisheries, but safeguards are inadequate to ensure environment

protection (GoM, 2011). Lack of clarity about the roles and responsibilities of concerned agencies (Gerritsen, 1998) and ambiguities in implementation modalities also create hurdles for poor countries like Bhutan and Nepal in deriving benefits from access and benefit sharing mechanisms that would incentivize communities for conservation while generating income from industries (Poudel et al., 2010; GoN, 2014).

Uncertainty is an inherent characteristic of natural systems (Rist et al., 2013). Socio-ecological systems, especially in the HKH region, are poorly understood due to lack of long-term scientific and technical data (IPCC, 2007a, b; Cox, 2014). In the given situation, improper designing of programmes would lead to unintended consequences, further escalating the problem they intend to resolve (Spiteri and Nepal, 2006; Barrett et al., 2011). There have been attempts to improve the understanding of socio-ecological systems in the HKH region (Sharma et al., 2016). Meanwhile, Ludwig et al., (1993) suggest taking actions based on precautionary principles and adaptive management rather than delaying the actions until scientific certainty is achieved.

Challenges for Transboundary Landscape Initiatives

Critics argue that transboundary landscape initiatives are only intended to expand contiguous protected areas based on ecological theory that suggests “bigger is better”. A study by McCallum et al., (2015) supports this argument; it found that transboundary landscape initiatives are focused mainly on biodiversity protection. Such a notion could thwart integration of conservation and development and undermine access of local communities to natural and economic resources (Wolmer, 2004; Jones, 2005).

Proponents of transboundary initiatives opine that such initiatives provide opportunity to resolve sovereign issues such as border disputes and national security issues, but the issues restrain transboundary cooperation (Braack et al., 2006), which is evident in South Asia. The organizations may perceive limited gain or threat to national security and interest and choose not to cooperate in planning (McDonald, 2009) or data sharing (Plengsaeng et al., 2014). Technical issues, lack of national regulations and organizational setups necessary for transboundary cooperation pose constraints on data sharing (Gerlak et al., 2011; Plengsaeng et al., 2014; Thu and Wehn, 2016). Differences in laws and institutional structures, development and political priorities, administrative practices, economic status, societal attitudes and cultural values associated with a resource across neighbouring countries (Erg et al., 2012; Dallimer and Strange, 2015; Vasilijević et al., 2015) could restrain cooperation needed for integrating conservation and development at a transboundary scale.

Lack of resources and communication has been cited as common barriers across different transboundary landscape initiatives (McCallum et al., 2015). Transboundary landscape initiatives have higher transaction costs than local level initiatives (Leach et al., 1999) because the amount of time and cost for bringing multiple stakeholders together,

Representatives from Bhutan, India and Nepal discuss the potential for transboundary cooperation (Kathmandu, Nepal)



developing and enforcing legal instruments and monitoring their compliance is high (Salzman and Thomson, 2003). Therefore, benefits and costs of transboundary initiatives should be assessed at the beginning phase of the initiative and ways to reduce transaction costs of transboundary cooperation should be explored (Kark et al., 2009; Lim, 2015). Anecdotal evidences have shown that countries are willing to cooperate in addressing transboundary issues when there is a sense of crisis and better understanding of common problems, shared goals and benefits and costs of cooperation (Barrett, 2005).

Strategies for Integration of Conservation and Development

Understanding the trade-offs and complexities, programmes aiming for integration of conservation and development in the region have often been found to implement only environment-friendly development interventions that focus on sustaining local livelihood and improving governance of the management regime (Table 5) without committing to provisioning fundamental services such as roads (Wells, 1992). The programmes often use terms like sustainable livelihood (DFID, 1999), livelihood improvement, poverty alleviation, socioeconomic development and well-being, in line with the World Conservation Strategy’s definition of development (IUCN-UNEP-WWF, 1980). These strategies implemented at a local or national scale are similar to those of transboundary initiatives, including ICIMOD’s Transboundary Landscape Initiatives.

Table 5: Existing strategies for integrating conservation and development

Conservation	Development
<ul style="list-style-type: none"> • Awareness raising on the need for and ways of conservation • Declaration of buffer zone around protected areas • Application of traditional knowledge and practices • Formulation of rules and management plans by the government or local communities, while implemented by local communities • Habitat restoration with the participation of local communities • Capacity building for the protection, management, use and monitoring of resources • Environmental impact assessment of development projects 	<ul style="list-style-type: none"> • Compensations such as relocating communities to another place with better facilities and access to modern amenities • Benefit sharing, access to natural resources, revenue sharing of protected areas • Alternative livelihood options such as eco-tourism, natural resources based enterprises • Decentralization- transferring of rights to local communities for managing natural resources • Empowering local communities and building their capacity for improving institutional governance, technology transfer to improve agriculture practices and productivity, resource harvesting and use, early warning, etc. • Strengthening existing institutions and social networks • Securing land tenure and property rights over natural resources • Building partnerships between public and private sectors for economic value of ecosystem services such as biological prospecting, direct payments • Provisioning social services- education, health

Based on systematic reviews of integrated conservation and development projects, recommendations have been made for acknowledging the existence of trade-offs for the integration of conservation and development by multiple stakeholders (Robinson and Redford, 2004). Doing so would set the stage for further consultation, dialogue, negotiation and collaboration among the multiple stakeholders. Improvement of governance system (Bennett and Dearden, 2014), engagement of political organizations, strengthening of existing institutions and social networks (Lim, 2015), capacity building of stakeholders (Gruber, 2010), development of market based incentives for engaging local communities and building partnerships with the private sector for economic value of natural resources (Ferraro and Kiss, 2002; Roe and Elliott, 2006; Sachs, 2012; Kareiva 2014) have been found to effective and essential strategies for integration of conservation and development. In addition to those above, the outcome statement of the Global Landscapes Forum at the UNFCCC in 2016 also has stressed on strengthening cross-sectoral collaboration efforts and implementing new technology and tools to increase transparency and effectiveness (GLF, 2016).

With growing recognition of the need to link conservation and development, novel approaches and methods e.g., geospatial technology and participatory modelling tools have been developed to generate different types of knowledge necessary for understanding socio-ecological complexity (Kotru et al., 2014; Bouamrane et al., 2016). Sandker et al., (2009) emphasize the need to share outcomes of experimentation and models with stakeholders,

mainly decision-makers, which is often missing. Such information will help decision makers to anticipate consequences of their actions on a temporal scale (Rist et al., 2013).

Further, lessons learned and successes achieved by any project in integrating conservation and development will be sustained only if those practices are institutionalized and incorporated into policies. The policies aiming at environmental concerns need to be developed and revised based on collective learning and an adaptive management approach (Rist et al., 2013; Bouamrane et al., 2016). Recent policies and legislations of the countries in the HKH region have emphasized participatory development pathways that ensure environmental protection and sustainable use of resources through public-private partnership (Sharma et al., 2010).

To support local people's livelihood and encourage them to participate in conservation, the Community Forest Development Program Guideline of Nepal has set provisions for community forest user groups (CFUGs) to mobilize 35% of the total income of the community forest for local development and 25% for forest management. Similarly, the government of India is piloting a provision of Biodiversity Act for forming Biodiversity Management Committees (BMCs) at the local level in Uttarakhand to promote conservation of traditional knowledge, culture and biodiversity as well as to provide economic incentives to local communities through private-public partnership (Kotru et al., 2017). Recently, a performance-based direct payment mechanism has garnered much attention at policy levels for compensating and incentivizing communities to conserve ecosystems (Roy et al., 2015; ICIMOD, 2016).

There are mandatory provisions of environmental assessment for incorporating environmental concerns into development plans in a few countries like Bhutan, India and Nepal. For instance, the Economic Development Policy of Bhutan (GoB, 2010) aims for economic growth with minimal ecological footprint; Bhutan vowed during COP 15 to remain a carbon neutral country perpetually. Similarly, GoI (2013) aims for faster, inclusive and sustainable growth through public and private sector investments in infrastructure development and manufacturing industries. Further, donor agencies and financing institutions in the region have also developed a safeguard system for protecting the environment and the rights of the indigenous communities while developing infrastructure (Dalal-Clayton and Bass, 2009).

It is widely accepted that multilateral agreements provide opportunities for cooperation needed to address issues concerning integration of conservation and development at scale (Horwitz et al., 2011). For instance, the Paris Agreement 2015 (UN, 2015b) urges all parties to "take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases..." through international cooperation as outlined in existing frameworks such as The Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts and the Cancun Adaptation Framework. Strengthening existing institutions (both organizations and rules) and building institutional linkages within and across international borders at different levels are vital for effective implementation of the multilateral agreements (Petursson et al., 2014; Lim, 2015). The idea of a nested institutional structure, which requires establishing a new basin or ecosystem-wide organizations for collaboration and coordination amongst existing local networks, has been put forth (Margerum, 2007). The proponents suggest that the structure will address issues at respective levels more efficiently, reduce transaction costs and sustain organizational efforts. Besides these formal mechanisms, literature emphasizes informal cooperation – communication between local communities as well as government officials of different countries to build trust and ease tensions (Lim, 2015; McCallum et al., 2015).

In the context of South Asia, the South Asian Association for Regional Cooperation (SAARC), South Asia Cooperative Environment Program (SACEP) and South Asia Wildlife Enforcement Network (SAWEN) are some of the interactive platforms for governments in the region to discuss issues of conservation and development. The countries have made collective efforts to address the region's environmental, economic and social concerns such as controlling air pollution, combating illegal trade in wild species and their products, infrastructure development, etc. through exchange of knowledge, technology transfer and investments (Srinivasan, 2012; UNEP and Development Alternatives, 2014). However, governance and institutional reforms at different levels in the region are needed to translate the political pledges into action (World Bank, 2003; Jha, 2004; Sharma, 2013).

Experiences on Integration at ICIMOD

ICIMOD initiated the Transboundary Biodiversity Management project in 2002, adopting the Ecosystem Approach with the aim to promote sustainable use of biodiversity resources and effective conservation across international borders. ICIMOD has identified seven transboundary landscapes (TBL) across the HKH region, viz. Kailash Sacred Landscape (KSLCDI), Kangchenjunga Landscape (KLCDI), Landscape Initiative for Far Eastern Himalayas (HILIFE), Hindu Kush Karakoram Pamir Landscape (HKPLCDI), Wakhan Landscape (WL), Everest Landscape (EL) and Cherrapunjee-Chittagong Landscape (CCL), considering their ecological, cultural, social and economic importance (Table 6). The initiatives aim to integrate conservation and development through piloting of innovative practices and generating knowledge for evidence based policy making (Shakya et al., 2012). The programmes under the initiatives have focused on improving agricultural productivity and household incomes, promoting gender equity and inclusiveness for natural resources management and capacity building of local communities for enterprises development (Sharma et al., 2010).

Table 6: Salient features of TBL initiatives of ICIMOD

*TBL Initiatives	Geographical location	Salient features
KSLCDI	<ul style="list-style-type: none"> Tibet Autonomous Region, China Uttarakhand State, India Far Western Nepal 	<ul style="list-style-type: none"> Comprises Mt Kailash, Mansarovar Lake and other cultural heritage sites Upstream area of the Indus, Karnali, Brahmaputra and Sulej rivers
KLCDI	<ul style="list-style-type: none"> Western Bhutan, Darjeeling and Sikkim, India Eastern Nepal 	<ul style="list-style-type: none"> Recognized as a Global Biodiversity hotspot comprising one Ramsar site, three IBAs, twenty-seven IPAs and nineteen protected areas
HI-LIFE	<ul style="list-style-type: none"> Arunachal Pradesh, India Kachin State, Myanmar Yunnan Province, China 	<ul style="list-style-type: none"> Meeting point of three Global Biodiversity hotspots Comprises seven sites of "Global 200 Ecoregions" Contiguous stretch of four protected areas of three countries
HKPLCDI	<ul style="list-style-type: none"> Wakhan, Afghanistan Xinjiang Uygur Autonomous Region, China Gilgit-Baltistan, Pakistan Gorno-Badakhshan, Tajikistan 	<ul style="list-style-type: none"> Upstream area of the Amu Darya, Tarim and Indus rivers Ancient Silk Road economy belt Contiguous stretch of six protected areas of four countries
REDD+	<ul style="list-style-type: none"> In countries: Bhutan, India, Nepal, Myanmar, Pakistan 	<ul style="list-style-type: none"> South-South Dialogue platform, National REDD Strategies and Piloting at the bottom level

*Only initiatives in the preparatory or implementation phase

Over the last 19 years, ICIMOD has published proceedings, reports and working papers on transboundary landscape. To better understand the objectives and focus of Transboundary Landscape Initiatives of ICIMOD, we systematically analysed major ICIMOD publications relating to TBL (Table 7), focusing on words used in the objective, vision, goals or activities of the initiatives for conservation and development.

It is found that the documents have highlighted major conservation issues and challenges in the respective landscapes that have direct and indirect linkages with social, cultural and economic aspects of the project area. The documents are aimed at achieving transboundary cooperation, mostly for tackling the challenges for biodiversity conservation. A review of these documents showed that biodiversity conservation has been the impetus of the transboundary initiatives of ICIMOD, which coincides with the findings of McCallum et al., (2015). Therefore, the strategies for reconciling dual objectives of conservation and development in TBL is lopsided, more inclined towards conservation, though livelihood is emerging as a common denominator. This is because the governments have stressed on demonstrating livelihood impacts on populations and ecosystem services in the pilot areas. As with other community-based natural resource management programmes, the strategies for development are aimed at improving the livelihood of the targeted communities through strengthening local institutions, developing skills, transferring technology and improving access to the market. Therefore, the initiatives at ICIMOD have been renamed "Conservation and Development Initiative", which also reflects integration of aspirational needs of local communities with the need to conserve natural resources. The programmes have been developed with wide

Table 7: Conservation and Development in TBL-ICIMOD

Title (Reference)	Strategies	
	Conservation	Development
^{a)} Regional Consultation on Conservation of the Kangchenjunga Mountain Ecosystem (Rastogi et al., 1997)	Safeguarding biodiversity	Well-being of local people Improving socioeconomic conditions
^{b)} Hands around Everest Transboundary Cooperation for Conservation and Sustainable Livelihood (Sherpa et al., 2003)	Biodiversity conservation	Sustainable livelihood Alleviate poverty through sustainable tourism, trade and technical exchanges
^{c)} The Landscape Approach in Biodiversity Conservation (Sharma et al., 2007)	Re-establish natural connectivity Community based natural resources management Sustainable use of resources	Economic gain
^{a)} Regional experience sharing consultation on the landscape approach to biodiversity conservation and management in the eastern Himalayas: Towards developing the Brahmaputra Salween landscape (ICIMOD, 2009)	Biodiversity conservation and management Protection of resources Incentive based conservation	Socioeconomic development Livelihood
^{d)} Kailash Sacred Landscape Conservation and Initiative: A regional programme implementation plan (2012-2016) (ICIMOD, 2012a)	Biodiversity and cultural conservation Sustainable use of resources	Livelihood Sustainable ecotourism Sustainable development
^{a)} Towards Developing the Karakoram-Pamir Landscape (ICIMOD, 2012b)	Biodiversity management Establish connectivity corridors	Sustainable development Sustainable economic opportunities Improve livelihood options
^{e)} Transboundary Landscape Management Framework for Ecological and Socioeconomic Resilience (Shakya et al., 2012)	Developing conservation corridors Interventions focused on ecosystems and species	Promotion of livelihood options linked to conservation Socioeconomic resilience

^{a)} Workshop proceedings, ^{b)} Report, ^{c)} Framework paper, ^{d)} Project document, ^{e)} Working paper

participation of researchers and government officials but the documents lack evidence to prove that such rigorous consultations have been done at the local level as well.

All five initiatives have developed their conservation and development strategies, which are broadly categorised into four themes: a) conservation, b) development, c) knowledge generation, and d) transboundary cooperation. Among the TBL initiatives, KSLCDI had a five-year implementation phase, while others, KL, HI-LIFE, HKPL and REDD+, are in the very early stage of implementation. For that reason, we have highlighted some of the programmes of KSLCDI across different themes (Table 8).

The initiative has emphasized participatory biodiversity management approach (Kotru et al., 2017), under which the capacity of local communities has been built to develop and implement ecosystem management plans for different ecosystems. Regarding the development strategy, value chains of various niche products have been promoted through formal and



Officials seize a snow leopard skin from poachers (Darchula, Nepal)

informal groups for diversifying livelihood of local communities as well as to enhance their income. Capacity building of local groups, and building linkages between local groups with private sector and government schemes were done to ensure sustainability of the various conservation and development activities.

In order to build the empirical base to understand changes in the socio-ecological systems and identify the factors that control probabilities of such changes, long-term monitoring plots have been established across the landscape following a common methodology. It is a novel scientific action that will enable the stakeholders for adaptive management. Some of the efforts to integrate conservation and development at the transboundary scale include:

- Establishing and strengthening the existing network for controlling illegal poaching and trade of natural resources (parts of wildlife, plants, etc.);
- Restore and manage the habitat of migratory species to ease their movement, with a focus on flagship species;
- Control cross-border spread of livestock diseases, forest fires;
- Promote the livelihoods of people (transboundary tourism, common branding of products from the landscape); and
- Exchange of good practices, knowledge and technology at various scales, i.e., community, district and central level governmental and non-governmental agencies.

Table 8: Conservation and Development Strategies across TBL-ICIMOD

Theme	Strategy	Programmes of KSLCDI
Conservation	<ul style="list-style-type: none"> • Participatory conservation of biodiversity (establishing biological corridors, ecosystem restoration) • Implementation of participatory ecosystem management plans (forests, rangelands, wetlands, agro-ecosystems) 	<ul style="list-style-type: none"> • Developed ecosystem management plans and guidelines for management of resources such as yarsagumba • Capacity building of local, national and regional stakeholders for development and implementation of ecosystem plans
Development	<ul style="list-style-type: none"> • Diversify livelihood options (marketing various niche products, tourism) • Strengthen adaptation and risk mitigation capacity • Capacity building of stakeholders and local institutions (enterprises, resources user groups) • Strengthen local governance institutions 	<ul style="list-style-type: none"> • Promotion of niche products- Himalayan nettle, chyura products, honey, vegetables, kidney beans, etc. for livelihood development • Capacity building of stakeholders on building climate resilient niche products value chain • Building and strengthening of local institutions following principles of governance • Gender sensitization of local communities • Linking tourism value chain across borders
Knowledge generation	<ul style="list-style-type: none"> • Standardizing protocol for monitoring socio-ecological systems (forests, rangelands, wetlands, agro-ecosystems, invasive species) • Documentation, mapping and inventory of cultural heritage and socioeconomic issues (migration, tourism, human-wildlife, gender and governance) • Develop ecosystem valuation methods and compensation mechanisms • Sharing of best practices (Science, Policy and Practice) 	<ul style="list-style-type: none"> • Standardizing protocol for monitoring socio-ecological systems (forests, rangelands) as well as assessing cultural ecosystem • Establishment of Long-term Environmental and Socio-Ecological Monitoring (LTESM) sites across the landscape • Action research on agro-biodiversity, invasive species, rangeland and springshed management
Transboundary cooperation	<ul style="list-style-type: none"> • Organize regional platforms for networking of institutions and exchange of technology and information • Cross-learning and capacity building of national partners 	<ul style="list-style-type: none"> • Harmonized vegetation type map of KSL • Strengthening network at various scales to control illegal wildlife trade • Promotion of responsible/heritage tourism • Common branding of value chains • Use of communication strategy

Summing Up

The growing world population and increasingly visible impacts of climate change are putting considerable stress on resources and increasing the demand for food, fodder, energy and fibre. At the same time it is realized that conversion of forests or peat lands for the above purposes will reduce agricultural production and is hence neither desirable nor feasible from a long-term perspective. Instead, it has become essential to grow more with the same amount of (or even fewer) inputs such as water, energy and chemicals; lose less of what is produced; and maintain long-term health of the land, ecosystems, people, plants and animals involved in agricultural production. In simple terms it means that delivering prosperity efficiently and effectively is now all the more crucial (Nicholls et al., 2013). Capturing the synergies and managing the trade-offs involved in sustainable land use means tackling these challenges at the landscape level.

Ecological, social, economic and cultural systems of the HKH landscape are interconnected; they form a resilient system and are thus of transboundary nature. Their effective conservation needs close national cooperation in filling data gaps, information sharing, monitoring, and coordinated management activities. Many issues and challenges related to the effective management of such systems and solutions for sustainable development are also of transboundary nature and can only be addressed through regional scale collaboration. This opens up new opportunities and challenges for conservation and development at scale.

Transboundary Cooperation for Biodiversity and Peace, Salzburg Global Seminar of 2016 (Odenigbo, 2017) proposes seizing opportunities for change at landscape scale. In this context, it recommends incorporating transboundary conservation into existing regional economic integration and development programmes. Thus, it presupposes that landscapes encompass a diversity of interactions between people and the environment, and between agricultural and non-agricultural systems. It aligns with human-centric conservation where improved socioeconomic conditions gradually also lead to protection of natural resources.

Drivers of change related to conventional as well as climate change factors demand a balanced approach rather than a conservation/protection oriented approach and development based investments in the HKH across all Regional Member Countries (RMCs). Policies in almost all the RMCs indicate that they have moved away from protective approaches with strict monitoring that were used to conserve biodiversity across landscapes in the 1980s. Realizing that alienation of local custodians and customary institutions from such protective areas has not fully worked, such approaches have given way to an integrated conservation and development approach.

The HKH countries also recognize that 'landscape approaches' are more appropriate as various services that flow from forests cannot be confined to political boundaries. Landscape approach also seeks to provide tools and concepts for allocating and managing land to achieve social, economic, and environmental objectives in areas where agriculture, mining, and other productive land uses that compete with environmental and biodiversity goals.

Sayer et al., (2013) prepared a synthesis of the current consensus on landscape approaches. Accordingly, it was found that the landscape approach has been refined in response to increasing societal concerns about environmental and development trade-offs. Competing demands on land for ecosystem-based adaptation and mitigation, biodiversity conservation, and agriculture implies trade-offs, many of which are poorly understood and not easily resolvable. In the transboundary context, logistics and practicalities of controlling and managing natural resources add more challenges as issues of territorial integrity and national security come to the fore. There is no single best answer and societies are confronted with challenges that transcend traditional land use and natural resource management governance boundaries.

Amid of all the challenges, implementation of KSLCDI has shown that gradual mix of integrated ecosystem management approach for sustaining ecosystem services and livelihoods improvement is the crucial entry point. It also helps in scaling up complementary links to national and global agenda for integrating conservation and development. Most of the HKH countries are now parties to global level conventions (e.g. UNFCCC, CBD, UNCCD, Paris Agreement). Therefore, the challenges of getting stakeholder perspectives and priorities on board, having an outreach to scale, and securing a range of ecosystem services with sustainable and inclusive practices can be

converted to opportunities such as the South-South Dialogue in REDD+, cross-border information and knowledge sharing on wildlife trafficking to support biodiversity conservation, cultural festivals serving as people-to-people networking for experience sharing and marketing, and finally the use of harmonized knowledge products (e.g., common vegetation maps, ecosystem and LTESM frameworks, common branding and code of conduct).

However, pattern of consultative and participative processes needs consistent calibration for ownership by partnering countries. Ownership needs to be built organically as changes and adjustments in the political sphere, local governance and policy and practice take place slowly. Moreover, as people are and must remain at the centre of landscape conservation and development, linking livelihoods security with ecosystem services at scale paves the way for adding other complementary issues of national and global significance (CBD, SDGs, UNCCD). Given the range of drivers of change in the HKH, including climate change, transboundary cooperation learning has great potential to set the pace for conservation and development on a regional scale. Conservation and development can happen at scale with balanced trade-offs but requires deft steering of the above-mentioned processes.

Based on the analyses of the need, challenges and present practices of integrating conservation and development on a regional scale, the following key conclusions can be made:

- In the HKH, classical transboundary cooperation will grow organically, triggered by common management objectives and common livelihoods opportunities, to constructively forge conservation and development across scales, for instance common value chains and common branding of products, responsible and cultural heritage tourism.
- As the impacts of climate change are experienced across the HKH, landscape based trade-offs between conservation and development go across borders. At the same time, opportunities to mitigate impacts can be formalized through a joint regional cooperation framework and by developing an institutional mechanism between participating countries. The governments in the region need to make efforts to bridge gaps and strengthen collaboration in key areas of conservation and development that have been jointly identified and mutually agreed on, beginning with joint-research and capacity building and later moving towards developing common plans and policies.
- The regional bodies, such as the SAARC, need to play an instrumental role in advocating the interests of the region at global forums, facilitating intra-regional cooperation and expanding transcontinental knowledge networks.
- In the upstream-downstream context of the HKH, the understanding of resource protection and management opportunities should come at an early stage to ensure that transboundary cooperation for conservation and development yields a positive outcome. To enhance the understanding of such opportunities, it is important to promote good governance of natural resources through prevention and control of illegal poaching, NTFP trade, fair and equitable benefit sharing in forest based enterprises, etc.
- The third parties such as ICIMOD, WWF and IUCN can contribute to transparent and inclusive decision making by generating knowledge on imperative issues, documenting best practices, piloting innovations, developing and analysing policy measures and sharing them with policy makers and other stakeholders at different levels to forge national, regional and international cooperation for managing natural resources and livelihoods.

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