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Institutional arrangements for managing tourism in the Indian Himalayan protected areas

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HIGHLIGHTS

- Institutional framework best suited to manage tourism was assessed for four PAs of the Indian Himalaya.
- Multiple case study analysis using participant observations, focus group discussions & stakeholder analysis was used.
- Weak institutions and governance systems may lead to mass tourism controlled by powerful stakeholders.
- Local institutions with strong intrinsic spatial linkages are most adaptive to challenges of a globalized economy.
- Traditional local institutions assisted by government & NGOs are best suited to achieve Aichi Biodiversity Targets.

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ABSTRACT

Tourism has the potential to advance biodiversity conservation through the creation of societal constituency by providing alternative livelihood to resource-dependent communities. Institutional arrangements play a crucial role in ensuring equitable benefit sharing of tourism gains among different stakeholders. We examined this role of institutional arrangements in four National Parks of the Indian Western Himalaya at varying altitude through multiple case study analysis using qualitative methods. Our results suggest that a three-tier setup involving local communities and civil society organizations, supported by enabling government policies is most efficacious in mainstreaming socio-economic development of local communities and environmental concerns in tourism management framework. Strong local institutions with intrinsic spatial linkage are required to ensure maximum benefits to all sections of society and least monetary leakages. We recommend that in natural landscapes with conflicting interests among stakeholders, a hierarchical three-tier institutional arrangement should be encouraged to achieve the goals of sustainable tourism.

1. Introduction

The Convention on Biological Diversity articulated five strategic goals to be achieved by 2020, popularly called the 'Aichi Biodiversity Targets', these goals *inter alia* reassert the emphasis on Protected Areas (PAs) (CBD, 2011). A key concern for PA management worldwide is that the local communities often bear the indirect costs of conservation due to the creation of PAs (Badola & Hussain, 2003; Bhattarai et al., 2017; Karanth, Gopalaswamy, DeFries, & Ballal, 2012). Most of the PAs in the tropics are created on traditionally inhabited lands and used by the local/indigenous communities (Arriagada, Echeverria, & Moya, 2016; Ferraro, Hanauer, & Sims, 2011; Ghate, 2003). The unavailability of alternative resources and livelihood options for forest-dependent communities makes them hostile towards conservation efforts and creates challenges for the PA management (Badola, 2000; Badola, Barthwal, & Hussain, 2012; Brockington, Igoe, & Schmidt-Soltau, 2006). The legal status of PAs and the concerns for conservation limit the scope for providing consumptive benefits to local communities (Sebele, 2010; Sekhar, 2003). Tourism can be a mean of achieving Aichi Biodiversity Targets as it generates support for conservation by creating a source of income for natural resource-dependent

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communities (Adenle, 2012; Hussain et al., 2012; Karanth & Nepal, 2012; Nepal & Spiteri, 2011) without undermining the natural resources (Neto, 2003; Nyaupane & Poudel, 2011). However, unregulated tourism infrastructure development, extraction of natural resources and tourists' activities in ecologically fragile areas can create challenges for PA management (Figueroa & Rotarou, 2016).

Institutions are the conventions, norms and formal rules of the society, which regularize life, support values, and protect interests (Vatn, 2010). Institutions through the formal and informal rules determine the nature of the tourism activities and influence the tourists' behaviour. Institutions provide incentives or disincentives to the people that determine their direct or indirect role in shaping the nature of tourism in the given area, control tourism activities and their impacts on the ecological, social and cultural values of an area, and the manner in which the benefits are shared among the different stakeholders (Liu, Cheng, & Cheung, 2017).

Institutions can be categorized into groups i.e. formal and informal. Formal institutions have codified rule while informal institutions have socially shared, openly codified and unwritten rules (Helmke & Levitsky, 2004; Holmes, Miller, Hitt, & Salmador, 2013; North, 1990; Torniainen & Saastamoinen, 2007). It is largely accepted that in the developing countries the representation of poor and women, particularly in natural resources management, is more in informal local level institutions rather than the formal institutions that are largely looked upon as the bastion of the educated, rich and men (Thomas, 2004; Bjarnegård, 2013; Chappell & Waylen, 2013; UN, 2013, p. 4). Local institutions can prevent nature-based tourism from transforming into mass-tourism by restricting the volume of tourists and development of physical infrastructure. Strong local institutions augment the resilience of the local communities to adverse social, cultural and ecological changes and ensure equitable benefit sharing (Bhatt, Bavikatte, & Subramanian, 2012; Ogra & Badola, 2014; Stronza & Pêgas, 2008).

A set of vertically integrated and hierarchical institutions that include frameworks such as polycentric governance, nested institutions and boundary organizations or 'hybrid environment governance', and an understanding of institutional void is advocated for managing and conserving biodiversity (Araral & Hartley, 2013; Ostrom, 1972, 2010a; Rowley, 1997; Roxas & Chadee, 2013; Tumusiime & Vedeld, 2012). The role of such 'hybrid environmental governance' has been the hallmark of forest management by local communities and the state in the western Himalayan region (Armitage, Loe & Plummer, 2012). However, the rapid infrastructure and economic development in the region, the resultant emergence of new stakeholders and changes in the roles and position of the existing stakeholders may have undesirable impacts on the vulnerable groups (Jegadeesan & Fujita, 2011) and therefore the efficacy of these institutions needs to be assessed and remodeled.

This study aims to examine institutional arrangements both formal and informal for managing tourism in PAs in Indian Western Himalaya (IWH) to advance the objectives of biodiversity conservation and equitable benefit sharing of tourism gains among various stakeholders.

The PAs in the IWH cover 10.9% of the geographical area and are the repository of crucial and varied ecosystems and the last refugia for some of the iconic species. The region serves as the catchment for some of the important rivers with an annual flow of 1,200,000 million m^3, providing water to millions of people, both upstream and downstream (Negi & Joshi, 2002; Singh, Arora, & Goel, 2006), and other ecosystem services (Badola, Hussain, Dobriyal, & Barthwal, 2015; Badola et al., 2010). The challenges for the Himalayan PAs include sensitive ecosystems that require protection, natural resource dependent communities in need of alternative livelihoods (Måren, Bhattarai, & Chaudhary, 2014; Pandit, Kumar, & Koh 2014) and a landscape that has traditionally attracted tourists for religious, nature-based and leisure activities. Tourism in the PAs of IWH provides alternative development trajectories to the resource dependent and development deprived communities living in Protected Area borderlands (Dobriyal, Badola, & Hussain, 2017; Kent, Sinclair, & Diduck, 2012) Tourism is also a potential means to create a larger societal constituency to support biodiversity conservation. However, it can be a double-edged sword for the region, providing potential solutions to key challenges in the PAs of IWH, but can pose additional threats to biodiversity and local culture if unregulated (Zhong, Deng, Song, & Ding, 2011).

The present study was undertaken to i) identify the institutions, their characteristics and role in managing tourism, and ii) determine the governance setup and institutional framework best suited to achieve equitable benefits sharing among various stakeholders and biodiversity conservation via tourism in the PAs of IWH.

In the present study, the formal institutions include the state governed institutions such as those created by and under the control of the forest department and the formal laws and policy related to PA tourism. The informal institutions include those that have been initiated by the local people and their practices.

2. Approach and methods

2.1. Tourism in the Protected Areas of Himalaya

The Himalayan ranges extend for about 3000 km from east to west, with elevation ranging from about 300 m asl to more than 5000 m asl. The major landforms of the ranges, separated by transverse valleys and river gorges, are the Shiwalik (hills ranging from 500 to 1200 m), Outer or Lesser Himalaya (rise sharply up to 2500 m and above) and Greater Himalaya with glaciers and permanent snow (peaks rising beyond 5000 m). The temporal and spatial variations in physical conditions and diverse climatic conditions result in markedly diversified phyto-geographic stocks. Four PAs that are popular tourist destinations, located in the IWH namely Hemis National Park (HNP) in Jammu & Kashmir and Valley of Flowers National Park (VOF), Nanda Devi National Park (NDNP) and Corbett National Park (CNP) in Uttarakhand, were selected (Fig. 1) for the study. These sites have varying elevation gradient, resulting in differences in natural resources, livelihood patterns, social structure, tourist profile and nature of tourism (Table 1).

These sites are designated as National Parks under the Indian Wild Life (Protection) Act, 1972, where no human activities are allowed. However, local communities have traditionally resided in and around these National Parks and are dependent on the natural resources.

2.2. Examining institutional framework through multiple case study analysis

The study was conducted applying multiple case study analysis approach to understand the formal and informal institutional arrangement for tourism management in the aforementioned PAs (Baxter & Jack, 2008; Yin, 2014), without differentiating between tourism, ecotourism and any other prevalent tourism models. Qualitative methods including participant observations, focus group discussions (FGDs), stakeholders analysis, and literature review were used for the study (Glaser & Strauss, 1967; Rastogi, Badola, Hussain, & Hickey, 2010; Yin, 2014) (Fig. 2). More than two years of stay with the local communities, by the authors enabled participant observation at each site. For each site, the components of PA management *i.e.* the government departments and organizations involved in the management of PA, natural resources dependent local communities, tourism apparatus and tourism revenue sharing mechanisms were examined. Through

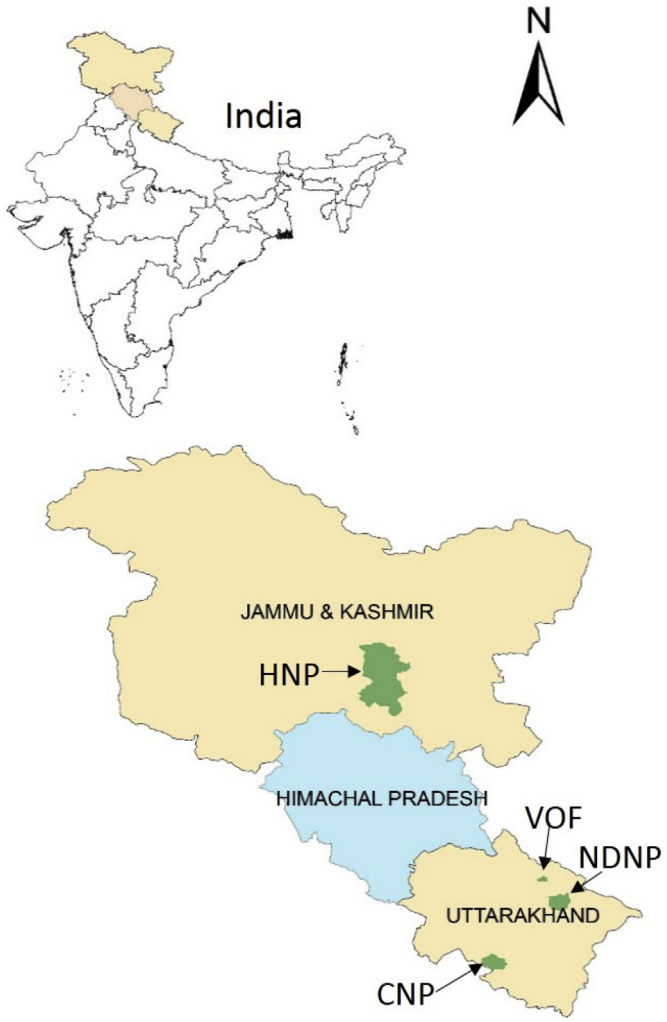

Fig. 1. Map showing location of the study sites (HNP: Hemis National Park, VOF: Valley of Flower National Park, NDNP: Nanda Devi National Park, CNP: Corbett National Park).

literature review and snowball technique, a list of stakeholders and institutions was generated for PAs (Bah & Goodwin, 2003; Rastogi et al., 2010). Subsequently, in-depth FDGs involving identified stakeholders were conducted to understand their role and perspective on tourism benefits and management. Formal interactions were conducted with local communities, people employed in the tourism industry and members of various governmental and non-governmental organizations (Liu et al., 2017).

We interacted with relevant members of formal institutions *viz* government agencies and village level institutions and members of informal institutions operating within the local communities (Table 2). Questions were asked about the involvement of local communities in the various tourism-related activities *e.g.* provision of accommodation/transportation, food, selling local products etc., income/revenue generated from tourism-related activities, power equation in controlling the growth of tourism, the experience of tourists etc. Two FDGs were conducted at VOF while five FDGs were conducted at the other three sites, as there is only one village on the fringe of VOF while more villages are present in the rest of the sites (Table 1). More than 200 participants, representing various stakeholders participated in the FGDs. Each case was examined using the same set of variables. Community in HNP is homogenous and has only one social group,

Table 1
Description of the four Himalayan Protected Areas selected for the study.

	Hemis National Park	Valley of Flowers National Park & Bhyundar Valley	Nanda Devi National Park	Corbett National Park
Status	National Park	VOF- National Park BV- Reserve Forest Part of Nanda Devi Biosphere Reserve (NDBR)	National Park (NDNP) Part of Nanda Devi Biosphere Reserve (NDBR)	National Park (part of Corbett Tiger Reserve)
Area	4750 km^2	VOF- 88 km^2	NDNP- 625 km^2	521 km^2
Coordinates	latitude 33°15′N longitude 75°50′E	latitude 30°44′ N longitude 79°38′ E	latitude 30°25′N longitude 79°50′E	latitude 29°25′N longitude 78°5′E
Biodiversity focus	Snow leopard, mountain ungulates, *trans*-Himalayan flora	Snow leopard, Himalayan black & brown bears, mountain ungulates including Himalayan musk deer, alpine flora	Snow leopard, Himalayan black & brown bears, mountain ungulates including Himalayan musk deer, alpine flora	Large mammals including the tiger and elephant, spotted deer, sambar, hog deer, barking deer, tropical forests
Geographic region	Trans Himalaya	Greater Himalaya	Greater Himalaya	Lower Himalaya
Local communities	Ladakhi Buddhist	Garhwali	Bhotia (tribals)	Kumaoni and forest dwellers (Gujjar)
Primary source of income	Tourism, self- employment, agriculture	Tourism, small businesses, agriculture, livestock rearing	Agriculture, livestock rearing, hydro-electric projects, tourism, small businesses, government employment, medicinal plant extraction	Agriculture, jobs in government and private sectors, tourism
Focus-group discussions conducted	5	2	5	5

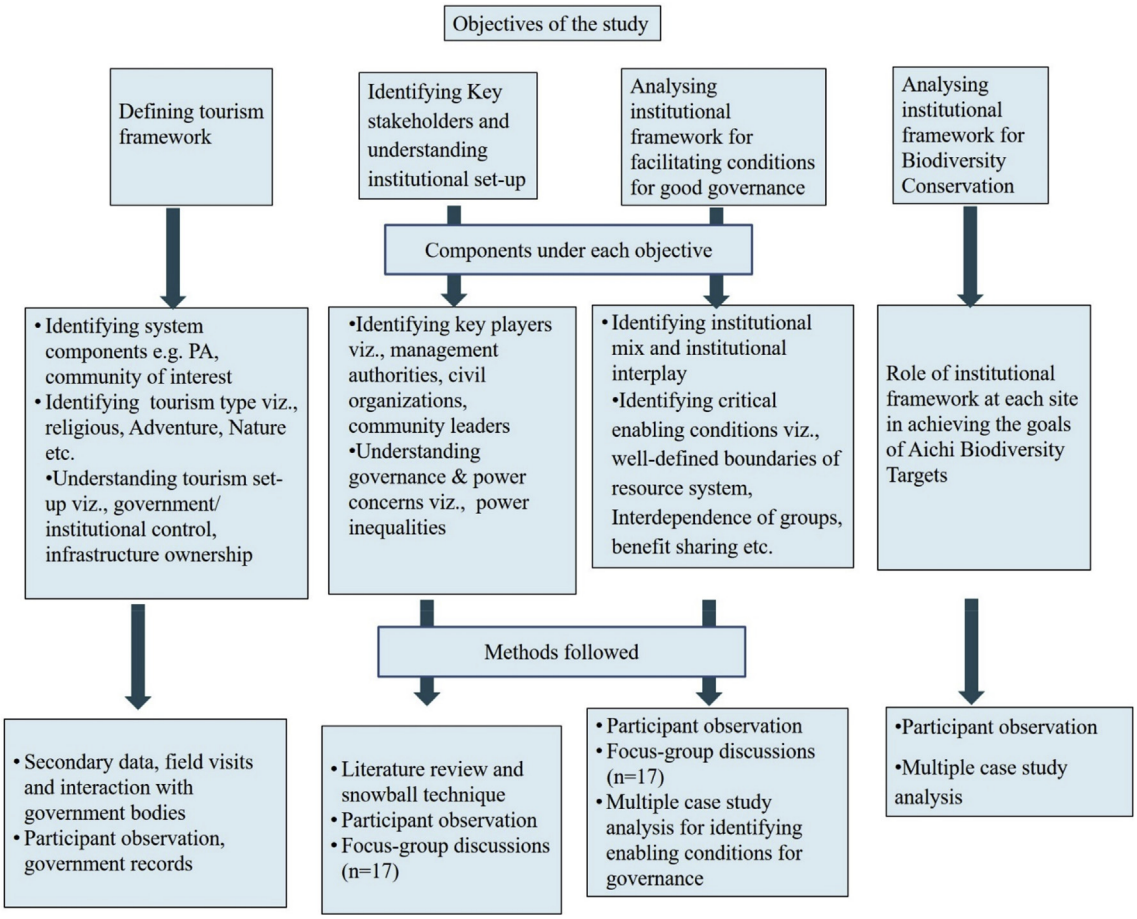

Fig. 2. Conceptual framework of the study.

while communities in other three sites are heterogeneous with different social groups. Participation from all the economic and social classes was ensured to gain an unbiased perspective of the conditions. Representation and participation from women, ethnic groups, various castes etc. within the local community was ensured. Based on data collected, the institutions were analyzed for the presence or absence of critical enabling conditions for good governance following Agarwal (2001) (Table 3), with respect to tourism. Furthermore, institutional analysis and development model given by Ostrom (1990; 2011) was considered while analyzing the formal and informal institutions. Evaluation criteria given by Ostrom (2005; 2010a; 2010b; 2011) i.e. goal and objective of the institution, actions, involved actors and their interaction with local communities, and resulting impact of actions and interactions on tourism setup and local communities was also used for comparing institutional arrangements at the study sites.

The analytical framework looked at key dimensions of governance including interaction among stakeholders, both 'governed' and 'governing', benefit sharing within the local community and resulting power relationships between these groups (Meadowcroft, 2004). The challenges and opportunities experienced in attaining good governance at a particular site and the impact of existing tourism institutional arrangement on the local communities and its efficacy in achieving Aichi Biodiversity Targets were examined.

The data generated was transcribed, and each relevant unit of data was assigned codes to describe the process, compile and organize the data (Creswell, 2013; Huberman & Miles, 2002). Both pre-set and emergent codes were used (Gibbs, 2007).

For the information garnered during the FGDs, emergent codes were used. The coding was done in two stages. In the first stage, the interactions conducted with different stakeholders and during FGDs were coded in short phrases to ensure no loss of data and to understand the patterns in the answers. In the second stage, keywords from these short phrases were selected from which numeric codes were generated *e.g.*, type of tourism were coded as 1 for nature-based, 2 for adventure-based, 3 for religious and 4 for leisure tourism. Codes were refined before final analysis (Saldaña, 2015; Jin & Anderson, 2012). The constant comparison method was followed to compare the properties of various categories and themes, i.e., different tourism apparatus and institutional arrangement at each site were analyzed and their interrelationships were identified (Glaser & Strauss, 1967).

3. Results & discussion

3.1. Landscape, institutions, communities, challenges, and opportunities

3.1.1. Hemis National Park (HNP)

The HNP encompasses an area of 4750 km^2 with an elevation range of 3200–6400 m asl, in the Leh district of the Indian *Trans*-Himalaya. Extreme climatic conditions with limited growing season and resources (precipitation and food) make the region fragile and prone to ecological disturbances (Namgail, Van Wieren, Mishra, & Prins, 2010). The unique floral and faunal assemblage and physiological, geological and cultural features attract both adventure and cultural as well as spiritual tourists (Geneletti & Dawa, 2009). The HNP has a very low human density and people

Table 2
Stakeholders in the study sites and interactions held.

Stakeholders	Number of interactions held with stakeholders groups			
	HNP	VOF & BV	NDNP	CTR
Local communities	25	30	50	35
Homestay owners	20	NA	11	10
Parachute café	8	NA	NA	NA
State Forest Department	10	5	8	11
Department of Tourism	5	8	6	8
Ecodevelopment Committee	NA	6	NA	NA
NGOs	10	5	5	10
Tour operators	10	5	5	15
Hotel and guest house owners	15	16	5	15
People engaged in tourism activities *e.g.* drivers, guides, porters, shopkeeper	15	40	15	40
Religious groups	NA	5	NA	NA
Tourists	30	100	25	50

Table 3
Synthesis of the facilitating conditions* for good governance of tourism framework at the study sites.

Components	Condition	Hemis NP	Valley of Flower NP/Bhyundar valley	Nanda Devi NP	Corbett NP
Resource system	Small resource size	Yes	Yes	Yes	No
	Well-defined boundaries of resource system	Yes	Yes	Yes	Yes
Groups	Small group size	Yes	Yes	Yes	No
	Shared norms of the group	Yes	Yes	Yes	No
	Appropriate leadership	Yes	Developing	Developing	Absent
	Interdependence of groups	High	Developing	Partial	Low
Relationship between resource system and groups	Overlap between resource location and user location	Yes	Yes	Yes	No
	Level of dependence on resource system	Low	High	High	High
	Fairness in allocation of benefits	Yes	Partial	No	No
Institutional arrangements	Institutional rules simple	Yes	Yes	Yes	No
	Locally devised access and management rules	Yes	Partial	No	Vague
Relationship between resource system and institutions	Match restrictions on harvests to regeneration	Yes	Yes	Yes	No
External environment	Nested levels of appropriation, provision, enforcement and governance	Yes	Yes	Yes	No
	Market pressure	Low	Low	Low	High

*Facilitating conditions for good governance as identified by Wade, Ostrom, and Baland and Platteau (in Agarwal, 2001).

are traditionally engaged as agro-pastoralists (Chandola, 2012). Tourism has become an important source of livelihood for the younger generation who are no longer interested in following the traditional lifestyle. The total number of tourists visiting Leh district each year is higher than the district's population (Barthwal-Chandola & Barthwal, 2014).

The tourist season coincides with plant regeneration, the breeding season of wildlife, agriculture activities and livestock grazing in open grasslands. This creates cumulative pressure on the limited resources of this fragile ecosystem. The primary stakeholders of tourism in HNP are the local communities, owners of the parachute cafés and homestays, tour operators, porters, State Forest Department, non-governmental organizations (NGOs) and tourists (Table 2). Jammu & Kashmir Wildlife Protection Department (J&K WLPD) regulates tourist entry by permits (Fig. 3).

The J&K WLPD, NGOs and the Department of Tourism, Jammu & Kashmir along with the local people introduced the concepts of 'traditional homestays' and 'parachute cafés' located at the trek routes of the HNP. Support by these agencies is provided in terms of funding and infrastructure development in order to reduce dependency of local communities on natural resources and to gain support for conservation. Operated by groups of local women (Anand, Chandan, & Singh, 2012), 'Parachute cafés' are freestanding tea and snack bars constructed from the material of discarded parachutes (Badola, Ogra, & Barthwal, 2014; Chandola, 2012). Villagers take turns in hosting the tourists through mutual agreements ensuring equal opportunity for each household. Male members work as guides, pony men, and trek operators while women cook for guests and make products such as jams and wool products to be sold to the tourists (Badola et al., 2014). About 69% (n = 108) of the households situated within the HNP were involved in tourism-related activities with 27% (n = 108) households owning traditional homestays. On an average, each household earned US$ 1076 per annum from tourism activities (Chandola, 2012) of which 10–15% was contributed to the village fund to be utilized for the purposes of environmental protection and restoration (Jackson, 2012) (Table 4).

The entire tourism infrastructure is locally owned except for some porters, guides, and owners of pack animals, the villagers themselves govern the benefit sharing, with minimal interference from other agencies and/institutions (Fig. 3). Boundaries of resource system are well defined (Table 3). Traditional self-sustaining systems such as barter system reduce the market interference in the tourism set up while equitable benefit sharing results in a self-sustained system (Table 5). The main problem arising from the present system of tourism inside HNP is the demand from the local communities for construction of fair-weather roads in two valleys of HNP, which might increase the access to remote areas and result in mass-tourism, consequently hampering conservation goals and causing leakage of tourism benefits by the entry of new tourism stakeholders. (E.g. in Uganda; Tumusiime & Vedeld, 2012).

		Hemis National Park	Valley of Flower National Park	Nanda Devi National Park	Corbett National Park
Stakeholders participating in tourism		• Local communities • J&K WLPD (Park management) • NGOs • Private agencies • Tourists	• UKFD (Park Management) • Garhwal Mandal VIkas Nigam • Local communities • Private travel agencies • EDC • Tourists	• UKFD (Park Management) • Garhwal Mandal Vikas Nigam • Local communities • NGO (Mountain Shepherds) • Tourists	• UKFD (Park Management) • Local communities • Resort owners • Tourists
Institutional interplay	Park management	Regulates tourist visits into the PA	Regulates number of tourists entering the reserved forest area and Park	Regulates number of tourists entering the reserved forest area and Park	Regulates number of tourists entering the Park
	NGOs	Facilitator and link between local communities and government	-	Introduce local products to tourists	Limited role in tourism
	Private agencies	Tour operators	Provide additional infrastructure	-	Infrastructure: accommodation, networking with tourists etc.
	Local community	Provides facility to tourists. Monitors and regulates tourism setup; Benefit sharing mechanism	Provide basic facilities to both the adventure and religious tourists, provide infrastructure, work as mule owners	Provide basic facilities to the adventure tourists, work as tour guide, porters	Provide peripheral services as drivers, tour guides, resort staff etc.
	EDCs	-	Solid waste management, employment generation for local youth and women, charge fee from mule owners, potters, tourists and stall keepers	-	-
Effectiveness	Biodiversity conservation	Conserving biodiversity effectively	Conserving biodiversity- effectively inside Park but not in adjacent areas which form parts of NDBR.	Conserving biodiversity- effectively (due to status of the area the conservation programs are being conducted successfully).	Tourism poses threats to biodiversity conservation outside CNP boundaries.
	Benefit sharing	Equitable sharing of benefits among local communities	Non-equitable sharing, benefits amassed by village elites and outsiders	Non-equitable sharing, benefits amassed by village elites and outsiders	Non-equitable sharing, benefits amassed by outsiders
Regulators		Management and villagers regulate the activities inside HNP	Management regulates the activities inside the park, in the reserve forest, in buffer and transition zones. Developmental activities need to be certified from the Forest Department.	Management regulates the activities inside the park, in the reserve forest, in buffer and transition zones. Developmental activities need to be certified from the Forest Department.	Management regulates the activities inside CNP. There are no regulations on activities and development outside PA boundaries.
Check points		Present but not active	One active	One active	Present and active

Fig. 3. Institutions and their role in managing tourism in PAs in Indian Himalayas (modified from institutional analysis and development framework of Ostrom, Feeny, & Picht, 1993; Imperial, 1999; Ostrom, 2005; Ostrom, 2011).

Table 4
Tourism framework in the four Protected Areas of Indian Himalaya.

	Hemis NP	Valley of Flower NP and Bhyundar valley	Nanda Devi NP	Corbett NP
Types of tourism	Adventure and nature	VOF- Nature, Adventure BV- Religious, Adventure, Nature	Adventure and Nature	Nature and Leisure
Average number of tourists/year	~6000 per season	VOF- about 7000 per year BV- app. 0.5 million per year (2004-10), 90% religious	app. 100 per year (2001-11)	198,205 entries in CNP (2009-10)
Government revenue	Not known	VOF- US$ 500 (2001-11) BV- US$ 89,817 (2001-11)	US$ 1796 (2001-11)	US$ 730 008 (2009-10)
Governance/Institutional Control	Jammu & Kashmir Wildlife Protection Department	Uttarakhand Forest Department, No control on religious tourists to Hemkunt Sahib	Uttarakhand Forest Department	Uttarakhand Forest Department, no control outside PA boundaries
Tourism infrastructure ownership	Local community	Government agencies, villagers, outsiders	Local community (adjacent to Park boundary)	Infrastructure in CNP owned by government, outside PA boundary owned by outsiders and occasionally by local people.

3.1.2. Valley of Flower National Park (VOF) and Bhyundar valley (BV)

The VOF, located in the BV in Nanda Devi Biosphere Reserve (NDBR), covers an area of 88 km^2 and has a single village of Garhwali community on its periphery (Table 1). VOF primarily receives nature-based tourists while rest of the BV receives a large number of religious tourists (approx. 500,000 tourists) due to Hemkunt Sahib, a major Sikh pilgrimage destination. All the households of the valley are entirely dependent on tourism for their livelihoods; some own hotels, guesthouses and mules while others work as tour operators and porters. Women are involved in selling fodder to mule owners. Other stakeholders in the valley are the Ecodevelopment Committee (EDC), Hemkunt Sahib Gurudwara Trust (HSGT), Uttarakhand Forest Department (UKFD), Garhwal Mandal Vikas Nigam (GMVN) and NGOs (Table 2; Fig. 3).

EDCs are community-based natural resource management

Table 5
Assessment of institutions for managing tourism in the study sites for achieving Aichi Biodiversity Targets.

Aichi Targets		Hemis National Park	Valley of Flower National Park/ Bhyundar valley	Nanda Devi National Park	Corbett National Park
Goal B: Reduce direct pressures on biodiversity and promote sustainable use					
Sustainable infrastructure		Yes, provided as parachute cafes and homestays	Infrastructure is developed but unplanned and mainly provided by outsiders and some local villagers	Under-developed and provided by local villagers	Yes, planned and provided by UFD inside. Unplanned outside provided by outsiders
Sustainable resource use/consumption		Locally grown products and products from urban market are used imposing minimal pressure on PA resources	Some forest resources such as fodder and fuel wood are used while others are brought from market	Locally grown products and products from local market are used	Resources for tourism are brought from urban markets
Challenges to meet Goal B		Regulation on number of tourists entering the Park and development aspirations of local communities	Uncontrolled tourism has degraded the buffer zone of the Park and the biosphere reserve	Low income from tourism and restricted use of natural resources and development aspirations have raised conflict between local communities and management	Tourism has created pressures outside the Park boundary, blocking critical wildlife corridors
Goal C: Improve the status of biodiversity					
Flora	Success	Flora is protected in the areas within the PA as well as adjacent areas	Flora is protected within the boundaries	Flora is protected within the boundaries	Flora is protected within the boundaries
	Challenges	Maintaining regulation on number of tourists and use by local communities in terms of livestock grazing	In BV, flora is being affected by high volume of tourists	Low tourist volume has no significant impacts	No regulations on threats outside the PA boundaries
Fauna	Success	Fauna is protected in the areas within the PA as well as adjacent areas	Fauna is protected in the areas within the PA as well as adjacent areas	Fauna is protected in the areas within the PA as well as adjacent areas	Fauna is protected within the PA boundaries
	Challenges	Disturbance due to increased tourist influx and livestock grazing, including the grazing of pack animals	Natural habitat is being affected by the high tourist influx	Low tourist volume has no significant impacts	No regulations on threats outside the PA boundaries leading to increased human wildlife conflict
Habitat	Success	Due to remoteness of the area and habitat is protected both within and outside the PA	Habitat is strictly protected within the boundaries of VOF	Habitat is strictly protected within the boundaries of NDNP, not much pressure around the Park	Habitat is strictly protected within PA
	Challenges	Degradation resulting from development aspirations of local communities	In BV habitat is being affected by the high tourist traffic	Low tourist volume has no significant impacts	Habitat is threatened outside the PA by uncontrolled development for tourism

institutions created in the villages located on the periphery of PAs, to elicit community participation in biodiversity conservation and ensure equitable benefit sharing (Dejouhanet, 2010). Two EDCs have been established in Bhyundar and Govind Ghat, the two hamlets located on the way to Hemkunt Sahib, to manage the solid waste generated from tourism activities and to ensure that local people benefit from tourism. EDCs charge registration fee from mule owners, porters and an eco-fee from tourists and stall keepers (Table 4). These funds enable the EDCs to provide occasional employment to the youth and women in the area, where very few income generation opportunities exist.

A permit from the government agencies is not required to visit the religious site of Hemkunt Sahib, however, visits to VOF are strictly controlled by UKFD and visitors have to pay a nominal entry fee. To support the high frequency of tourists, there is an increase in the tourism staff from outside as there is a lack of trained persons in the area to handle management level jobs. The physical boundary of resource system is well defined in VOF while regulated access to the resources is allowed to the villagers in the rest of the BV. Households involved in tourism earn US$ 166.7 to US$4166.7 per annum per household; however, major benefits are amassed by village elites and outsiders (rich hotel owners and tour operators) (Dobriyal, 2015). The local community has little control over the management of tourism and the resultant revenue generated (Table 3). Strict management rules and low tourist volume have helped in effectively managing and conserving the VOF (Table 5); however, rest of the BV is facing ecological pressure due to high inflow of unaware tourists and unplanned infrastructure development posing challenges in achieving the Aichi Goal 'C' (Table 5).

3.1.3. Nanda Devi National Park (NDNP)

The NDNP, one of the core zones of NDBR, covers an area of 625 km^2, with no settlement inside; however, the Tolcha-Bhotia community inhabits the area adjacent to NDNP. Once among the most popular adventure tourism sites in India, access to NDNP for visitors was prohibited in 1982 to protect the biodiversity of the area. Later, tourists in small numbers were permitted up to a certain distance (Silori, 2001).

Agriculture, hydropower projects, tourism, government employment and medicinal plant extraction are the main employment opportunities in the area (Table 1). The area mainly hosts adventure and nature tourists (Table 4). Members of the local community are

involved in tourism as homestay owners, porters, trekking guides, drivers and tour operators and along with UKFD and NGOs are the key stakeholders (Table 2 & Fig. 3). About 25% of the households are involved in the tourism sector as tourist guides, porters, mule owners, drivers, hotel employees and homestay owners. Few households own taxis and run small travel agencies. The women are involved in cooking, maintaining homestays and production of woolen products at a small scale for sale. The average annual household income from tourism ranged between US$ 33.4 to US$ 2500.0. Income from tourism is contingent upon tourism activities undertaken (Dobriyal, 2015). However, a large part of the tourism income is appropriated by outside tourist agencies and hotel owners.

Boundaries of the resource system are well defined in NDNP and extraction of natural resources, even from the buffer, is restricted. Earlier tourism was the mainstay of the local economy; however, after restriction on access to NDNP, daily wage labour and agriculture become the primary source of income. Local people do not have access to infrastructure or skills to manage tourism without outside support resulting in monetary benefits accruing only to the high-end stakeholders and outsider tour operators. Local institutions are at a budding stage, with minimal control on benefit sharing from tourism, while government institutions work nearly independent of each other (Table 3). Although the restricted inflow of tourists minimizes interference in the natural habitat, it also generates limited livelihood opportunities, eventually resulting in social and economic stratification and multilevel conflict among the local community (Table 5).

3.1.4. Corbett National Park (CNP)

The CNP, located in the Terai Arc Landscape of the Western Himalayan foothills, was established as the first National Park of India (1936) and was later declared a Tiger Reserve (CTR) in 1973. The CNP, a premier PA with high tiger density, along with the Ramnagar Forest Division, forms a contiguous ecosystem for the northwestern range of the Bengal Tiger (Jhala, Qureshi & Gopal, 2015). Minimal human activity (phyto-resource collection) including controlled tourism is allowed in the buffer zone (Table 1). Tourism in and around CNP was developed on a commercial basis in the early 1990s with luxury resorts built by outsiders. Tour operators, hotel and guesthouse owners, guides, forest department, local communities, and NGOs are the main stakeholders (Table 2). Proximity to New Delhi and status of a Tiger Reserve makes it attractive to the global travelers (Badola et al., 2010; Hussain, Badola, & Thapliyal, 2007). The season for visiting and number of vehicles entering CNP is controlled and permits are obtained at CNP offices (http://corbettonline.uk.gov.in). Local communities' involvement is primarily in providing vehicles stipulated for entry into CNP and peripheral services such as guides, drivers, and lower level staff at resorts (Table 4, Fig. 3). The opportunities provided by tourism include increased awareness about CNP, attracting conservation focus and increased employment in the area where agriculture and animal husbandry were once the conventional livelihood options. Albeit in a few areas, tourism has provided fall-out benefits to the local communities, such as the access to infrastructure (Okello, 2014; Uddhammar, 2006).

The PA management has no control over tourism activities outside the boundary of PA; peripheral villages such as Dhikuli along the southeastern edge of CNP have become sites of intense and unplanned tourism with the majority of the lands converted to tourist resorts mostly owned by outsiders (Rastogi, Hickey, Anand, Badola, & Hussain, 2015). This infrastructure has completely blocked the corridors for animal movement and degraded the ecosystem connectivity between CNP and Ramnagar Forest Division, resulting in increased frequency and intensity in incidents of human-wildlife conflict. The financial benefits are mainly accrued by outsiders who have established a burgeoning tourism apparatus, thereby, alienating local communities and antagonizing a potentially supportive ally (Rastogi et al., 2010). In the absence of regulations, the steady stream of high-end tourists has also created pressure on the ecosystem and undermined sustainable development (Table 3). The overall livelihood pattern has also changed, with the majority (60–70%) of agricultural laborers now employed in resorts, earning meager incomes; few such opportunities exist for women. This rise in commercial tourism has resulted in a steep increase in the price of land, creating overnight wealth for landowners leading to economic hierarchies among the villagers, thereby degrading the social capital (Rastogi, Thapliyal, & Hickey, 2014) (Table 5).

3.2. Tourism outcomes for the local communities — livelihoods, social capital and equity

Tourism in PAs of IWH operates on resources governed and managed by the government agencies. These resources have been treated as open access resources by the local communities residing in and around of the PAs and other stakeholders. Engagement and development of local human capital, linkages between tourists and local community, revenue sharing mechanisms to enhance financial capital of the community, agreements and law, social equity and local culture are significant factors affecting equitable benefit sharing at the study sites (Goodwin & Roe, 2001; Mohanty, Burslem, & Lee, 2007).

In HNP, most of these factors are prevalent, and the tourism benefits are shared equitably leading to a sense of belongingness among local communities (Table 3). In BV, equitable access to opportunities and revenue sharing is absent. As the site mainly hosts religious mass tourism, achieving the goal of sustainable tourism is a significant challenge for the management authorities. In the BV, EDCs have been created by the state forest department to ensure community participation in benefit sharing from tourism activities and to control the negative impacts of mass tourism. These EDCs have succeeded in providing equitable opportunities to the local people for tourism benefit sharing at the village level. However, at a higher scale of monetary and policy engagement, they have little voice since they are still functioning as single units with little support from outside and lack of coordination among different EDCs.

In NDNP, gender equity and equitable access to opportunities are prevalent only in the marketing of local products while sectors such as accommodation and transportation are mainly governed by outsiders and few selective households. In and around CNP, formal agreement and laws are present to control tourism but due to the presence of high-end stakeholders, benefits are not shared with local communities. Intense and uncontrolled wildlife tourism around CNP poses a challenge to meet the conservation goals.

3.3. Assessment of tourism institutions for their ability to

3.3.1. Promote sustainable use of natural resources

In HNP, tourism has not yet created additional pressures on natural resources (Geneletti & Dawa, 2009); the local community has the capacity to develop physical infrastructure for tourists with locally available material, and limited market intervention. However, an increase in the number of visitors during the tourist season can be a potential challenge, which would jeopardize the whole concept of sustainable tourism. It is likely that the formal institution's laws will address these challenges through strict control on the number of people entering the HNP. In BV and VOF, tourism has reduced local dependence on natural resources thereby aiding in biodiversity restoration, although the high tourist volume in the ecologically fragile areas has made it vulnerable to degradation. In NDNP, restricted tourism has helped in restoration and

improvement of biodiversity and habitat that were under pressure due to previously unregulated tourism but has also created issues of limited livelihood opportunities. In CNP, the proliferation of urban tourism infrastructure on its borderlands has created additional pressures on the ecosystem by blocking ecological corridors (Rastogi et al., 2015).

> 'So much of construction is happening in the area, that it has changed the natural setup and diluted the feeling of closeness to the forest. If tourists just want concrete jungles, they should go to cities like Delhi, instead of bringing cities to our place.' An elderly villager at CNP.

3.3.2. Improve the status of biodiversity

In HNP, institutions involved in managing tourism have helped enhance the linkages between biodiversity and monetary benefits, especially among the youth, who take pride in the biodiversity of their area (Chandola, 2012; Jackson, 2012; Namgail et al., 2010). In BV, pressure on biodiversity (Diduck, Sinclair, Pratap, & Hostetler, 2007) has been reduced after the establishment of EDCs. The strict ban on tourism activities in NDNP has benefited the biodiversity (Kent et al., 2012). In CNP, while the PA itself is well protected, the adjacent areas lack any institutional linkages to control tourism, and this creates a significant challenge for conservation of wildlife habitat (Rastogi et al., 2010) (Table 5).

3.3.3. Equitable sharing of benefits, especially with the marginalized communities

In HNP, traditional institutions ensure equity so that every household gets equal opportunity to earn. In NDNP, tourism has helped in generating income for the local community; however, the benefits are skewed in favor of the village elite due to lack of institutional mechanisms to ensure equity. In VOF, tourism provides limited livelihood opportunity to the local communities. Religious tourism in BV provides monetary benefits to local people; however, major profit is accrued by the outsiders and influential households, adversely affecting social relationships. In CNP, the economic benefits of tourism are mainly accrued by the government and outsiders and employment is not often available to the most vulnerable members. This has created a negative attitude among the local communities towards the Park management. In all the study sites, tour operators are primarily outsiders whom tourists contact while planning a trip to the area.

> 'Major benefits are being accrued by the villages located near Badrinath and Hemkunt while villages located away from these sites do not get equal opportunities and yet face the negative impacts of tourism activities such as unplanned development and a shortage of resources during high tourist season'. A teacher at a village near Nanda Devi National Park

> 'We don't have money to invest in the tourism, only families who are already financially strong are getting benefits from the tourism activities'. A village woman from NDBR.

4. Conclusions

Authority with respect to PAs lies with the government and its agencies, local communities and civil society organizations often work in partnership with each other and the government agencies, playing a significant role in governance (Lockwood, 2010). We have recognized good governance arising as a result of enabling conditions in the study sites in terms of outcomes i.e., benefits sharing with local communities, sharing of power and responsibility with local communities and biodiversity conservation (Table 3).

4.1. Which institutions?

Poor and weak institutions and governance systems potentially turn tourism into mass tourism controlled by powerful stakeholders (Simpson, 2007; Wunder, 2000; Young, 2002) and can be the obstacle to conserve biodiversity (Barrett, Brandon, Gibson, & Gjertsen, 2001; Weinberg, Bellows, & Ekster, 2002). The integration of socio-ecological systems and the presence of strong local institutions results in the effective management of shared resources (Ban et al., 2013; Briassoulis, 2002; Carlsson & Berkes, 2005). In the above analysis (Table 4), it is clear that the institutional linkages established in HNP have been best able to achieve the targets of biodiversity conservation, specifically the Aichi Biodiversity Targets. The primary reason behind the success of institutions working for HNP is the small community with stable social relations of trust, reciprocity, common rules, norms and sanctions, and active networks (Barthwal-Chandola & Mathur, 2012). Local ownership of tourism infrastructure minimizes onsite monetary leakages and ensures maximum benefits. Governance institutions in HNP with the active involvement of women (Badola et al., 2014) have been developed and are being supported by different agencies (government, non-government, communities, etc.) that work in coherence and with a clear mandate to create an equitable and low-impact system. Clearly defined, hierarchical three-tier governance institutional arrangement (Park management and Tourism department, civil society and local communities) with forward and backward linkages among the institutions has been observed. In NDNP, the institutional arrangement is similar to HNP, regulated by the government and managed by communities, with the support of NGOs. Here, the institutional arrangement is recent and evolving with mixed success and provides an opportunity for monetary benefits to the local communities especially to ethnic groups, social backward classes, and women. In BV, on the other hand, an institutional willingness to manage mass tourism is absent due to the presence of high market demand. Local institutions are new and show limited success to meet the challenges of tourism. Similarly, CNP lacks an overarching institutional mechanism. The agencies (government, non-government, communities) work near-independent of each other thereby losing the capacity to address the situations that might threaten the goal of conservation as well as have negative impacts on the poor and women. The monetary benefits are mostly amassed by outsiders, who have the capital, experience, and expertise to establish and manage tourism infrastructure. The local institutions or the conservation efforts in all the sites, except HNP have been reactive and were developed in response to the problems associated with unregulated tourism *e.g.* EDCs in BV or ban/restriction on tourism in NDNP. However, the framework in HNP is proactive, which was developed to involve local communities in tourism and benefit sharing. The pro-conservation attitude of the local community created an opportunity for tourism in HNP without putting excess pressure on natural resources. However, for the system to sustain in the long run, check on the number of tourists and pack animals entering the PA should be made.

4.2. Layered institutional arrangement

The efficacy of hierarchical governance in context of environment management (Korda, Hills, & Gray, 2008; Meadowcroft, 2007) or common property resources (Agarwal, 2001; Baland & Platteau, 1996; Ostrom, 1990) has been studied and advocated by many, however, only recent studies have started focusing on hierarchical governance in tourism (Eagles, 2008; Hall, 2011; Hayes, 2006; Plummer & Fennell, 2009). As tourism setup, particularly in the context of PAs, tends to be intrinsically complex and based on common-pool goods, it should not be governed only by market or

powerful stakeholders. Our assessment indicates that a hybrid regime with layered institutional arrangements, created with the participation of multiple agencies working in close coordination, was best able to meet the Aichi Biodiversity Targets (Kirk, 2000; Muradian & Rival, 2012) while safeguarding against domination by powerful actors. In HNP, the local traditional tourism infrastructure was supported by the government agencies with assistance from the civil society. This institutional capacity was directed at creating a livelihood for the communities, utilizing the community's resources, and creating social and human capital. The institutions established in and around CNP, where different agencies organize tourism in isolation from each other, have had least success in using tourism to meet the Aichi Biodiversity Targets (even though the PA itself is regarded as a successful example of biodiversity conservation). The analysis thus indicates that in landscapes with high dependence on natural resources, traditional local institutions involving poor and women may have the best capacity to ensure sustainable tourism; however, they need support from the government agencies and nurturing from civil society organizations. Such institutional framework is capable of adapting and responding to the challenges of a globalized economy, but the government institutions need to evolve more efficiently, with stricter mechanisms to deal with unforeseen challenges (UNDP, 2010). An arrangement that utilizes the strengths of public bodies and professionals in soliciting tourists to remote areas, while using local capacities to provide a unique cultural experience, helps in overcoming collective weaknesses and synergizing mutual strengths of all stakeholders.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.tourman.2017.10.020.

Contribution

Ruchi Badola, Syed Ainul Hussain, Pariva Dobriyal, Shivani Barthwal and Archi Rastogi were involved in conceptualizing and designing the study and analysis and interpretation of data. PD, SB and AR were involved in the acquisition of data in the field. RB, SAH, PD, UM, SB and AR contributed in drafting the manuscript. RB, SHA, PD, UM, SB and AKG were involved in critical revision of the manuscript and developing important intellectual content. All the authors saw and gave approval for final, revised version of the manuscript.

Research interests

Ruchi Badola: Protected Areas-People interface, community participation in biodiversity conservation, ecosystem services valuation.

Syed Ainul Hussain: Conservation planning at the landscape level, free-ranging wildlife and their habitats.

Pariva Dobriyal: Ecosystem services and human well-being, community-based conservation.

Upma Manral: Rural livelihood security, community-based conservation, human-wildlife interaction.

Shivani Barthwal: Human-wildlife interaction, alternative livelihood for rural communities.

Archi Rastogi: Protected Areas-People interface, qualitative social research.

Amanat Kaur Gill: Environmental economics, ecosystem services management, community-based conservation.

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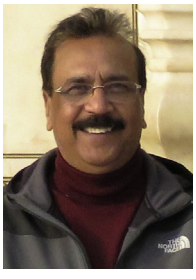

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