Economic Impacts of Protected Area Tourism on Local Communities in Nepal

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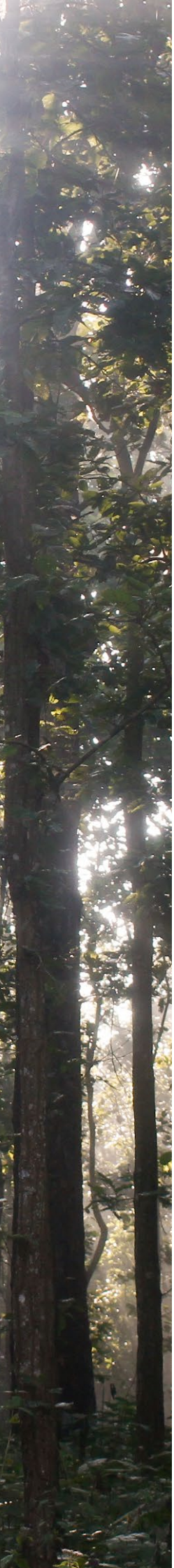


Executive Summary

Nepal is endowed with a wealth of natural resources including snow-capped mountains, abundant rivers, sub-tropical forests, significant biodiversity and wildlife, and pristine, diverse landscapes. A part of the Himalayan biodiversity hotspot, the country is recognized for its high endemicity and intact forest habitats. With less than 0.1 percent of global land area, Nepal is home to 9.3 percent of global bird species.

Nepal's biodiversity is managed within a network of 20 protected areas, including 12 National Parks, covering approximately 23 percent of the country's land area; in addition, over 40 percent of the country is classified as forest land. Over 45 percent of tourists to Nepal visit these protected areas, which play a significant role in driving tourism, and contribute to the country's economy. Visitors, however, predominantly visit only four parks, and thus, there is much potential for protected areas in Nepal to further contribute to development goals while maintaining the country's rich biodiversity asset base. This combination of protected areas and rich biodiversity is equally a major tourism asset in an industry which attracts eight billion visitors a year to protected areas.

The potential of Nepal's protected area network, and its contribution to the country's economic development is yet to be fully realized. This situation mirrors that of many countries in which governments value protected areas in conservation strategies but overlook them in economic development plans. This oversight is of great concern, as countries, globally, struggle to contain unprecedented biodiversity losses while trying to address development setbacks inflicted by COVID-19. Awareness is growing that these two challenges – precipitous declines in global biodiversity, and the imperative for a green recovery from the pandemic – must be addressed as one: neither problem can be solved without solving the other.

Additionally, these challenges must be met in the poor and often isolated rural regions in which many of Nepal's protected areas are found. Through the economic benefits it generates, protected area tourism is often one of the few means through which governments can support livelihoods, stimulate economic development, and cultivate local community support for conservation. In this context, the importance of protected area tourism cannot be overstated, because of its potential to address losses to economies, promote development, and support biodiversity conservation.

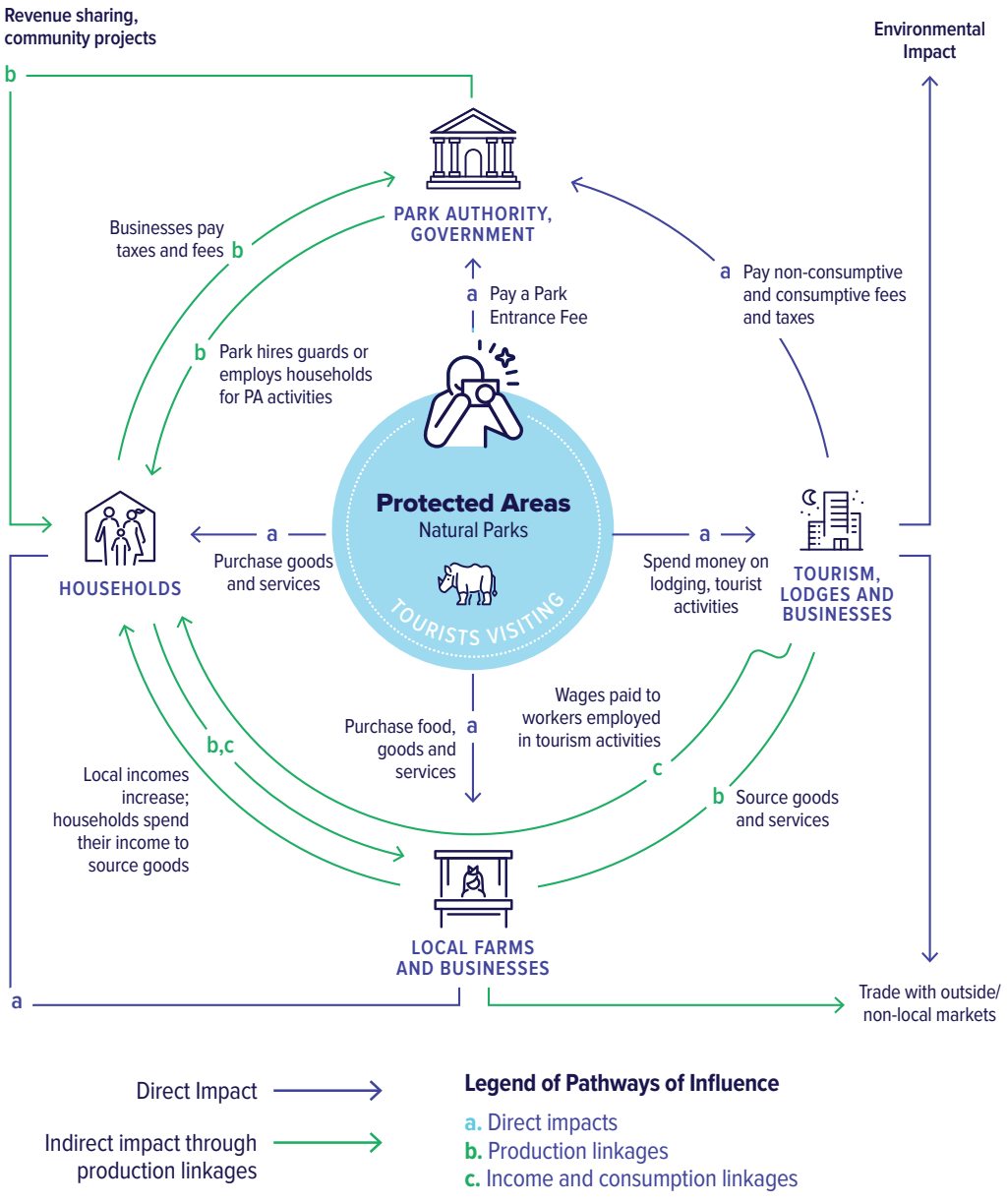
> This study therefore sets out to strengthen the economic case for the Government of Nepal to promote sustainable and inclusive tourism in its protected areas by estimating the direct and indirect benefits to local economies from protected area tourism.

How was the study done?

The study focused on Chitwan National Park, declared a UNESCO World Heritage Site in 1984, and an important tourist attraction. Chitwan has high biodiversity value and iconic species like the greater one-horned rhino.

The study surveyed communities from the Khairahani, Ratnanagar and Bharatpur municipalities surrounding the park, with data gathered from tourists, lodges, resorts, and local businesses and households on production, income, expenditures, and the locations of transactions (i.e., inside or outside the local economy). These data were used to quantify and trace the economic pathways through which protected area tourism stimulates local economies. A general equilibrium model for local economy-wide impact evaluation (LEWIE) was used to describe direct and indirect impacts of tourism by integrating models of actors (businesses and households) within a local economy, based on the data collected in the survey. Direct impacts refer to monies spent directly by tourists in protected areas; indirect impacts describe the knock-on effects of this spending, via production linkages which grow to support expanding tourism markets, and consumption linkages, through which wages and profits trigger fresh rounds of spending which ripple through local economies (Figure ES-1).

FIGURE ES-1. Economic Impact Pathways of Protected Area Tourism



What did the study find?

Investment in protected areas pays off, and is good not only for biodiversity conservation but for the development of the local economy. In Chitwan National Park, the economic return per rupee is conservatively estimated as 7.6 rupees per 1 rupee of government spending. This spending infiltrates local economies, and establishes Chitwan as a source of revenue, rather than a financial burden.

Expenditures by tourists in protected areas generate significant household income multipliers, defined as the change in local household incomes per rupee of tourist spending on local retail, services, and transport. The study estimates that *a rupee spent by visitors at Chitwan National Park raises the income of households around the park by 1.78 rupees,* reflecting the penetration of tourist spending into local economies. These multipliers benefit households directly involved in the tourism sector and those not, and both poor and non-poor households.

An additional rupee spent by tourists at the Chitwan National Park raises the real income of non-poor households by 1.60 rupees, and that of poor households by 0.18 rupees. Despite the large amount of the multiplier going to non-poor households, the economic contribution to local communities appears to benefit poor residents more than non-poor residents, and normalizing multiplier shares by these populations, as shown in figure ES-3, shows that multiplier shares per resident are comparable between poor and non-poor populations, with 8 percent more of the multiplier *share per resident* going to poor residents in both Bharatpur and Khairahani/ Ratnanagar.

Tourism also generates a significant number of jobs, directly and indirectly. The study estimates that national park tourism generates a total of 4,309 full-time equivalent jobs around Chitwan National Park, equivalent to 2.8 percent of the working-age population in this area. Jobs are created directly through tourism activities, and additional jobs arise when businesses such as tourism operators and tourism employees purchase supplies and services from other local businesses, thus creating indirect effects of visitor spending.

While the economic benefits of protected areas are considerable, the costs to local communities must be managed. Human-wildlife interactions around protected areas occur mostly in the form of crop losses, and have negative impacts on household incomes; according to the surveys, animal incursions onto farms around Chitwan reduced crop production by 9 percent. These direct impacts, coupled with indirect impacts through production and income *linkages amount to income losses to households and the local economy of around* NPR 333 million (US$2.92 million) annually. Such figures are important in that they underpin arguments in favor of compensation, which both mitigates these losses, and retains the needed support of local communities.

FIGURE ES-2. Income Multiplier for an Additional Rupee of Tourist Spending

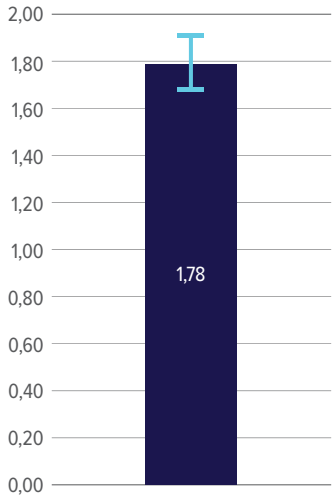
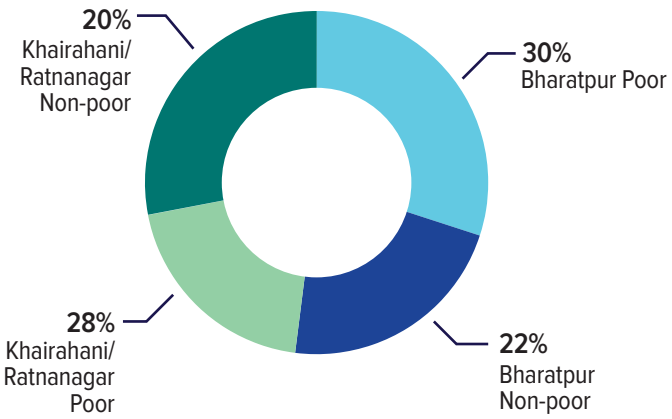


FIGURE ES-3. Distribution of Multiplier Across Poor and Non-poor Populations



The study also points to the need to address losses suffered by the sector due to the COVID-19 pandemic. While tourism grew rapidly in Chitwan National Park and surrounding areas in recent years, in 2020, the COVID-19 pandemic brought Chitwan tourism to a standstill, and the study shows that a complete loss of tourism revenue in this region reduces household real income by NPR 427.7 million (US$3.76 million) *per month*. While these losses accrue mostly to non-poor households, poor households suffer significant losses too. Each month without tourism reduces the income of poor households by NPR 9.55 in one study area (US$80,000) and NPR 33.3 million in the other (US$290,000). Local retail revenues contract most, followed by services and other production and livestock activities. These impacts indicate the extent to which support for protected areas will be needed to offset these losses and to realize the potential of protected areas to support a green economic recovery.

WHAT LESSONS CAN POLICY MAKERS DRAW FROM THE STUDY?

With over 23 percent of its land area under some form of protection, including 12 national parks, there is great potential for protected areas in Nepal to contribute to development goals while maintaining the country's biodiversity. To realize this potential, the report recommends enhanced protection of Nepal's natural assets, growing and diversifying the tourism sector, and sharing benefits with local communities. These approaches form the three pillars of a strategy to jointly address biodiversity loss, development challenges, and a green, post-COVID recovery.

1. **Protect the natural asset base.** To support conservation and secure the natural assets that draw visitors to Nepal, the protected area network needs to be better managed. To achieve this, specific recommendations from the study are to (i) increase public investment in protected area management; (ii) build capacity of protected area managers; (iii) manage the environmental footprint of tourism; and (iii) assess and monitor the impacts of visitor spending.
2. **Diversify and grow the tourism sector.** Nepal's tourism sector needs to expand and diversify beyond the four parks currently visited by tourists, and this will require policies, programs, and investments that go beyond protected areas to address challenges faced by the tourism sector. Nepal's protected areas need to be assessed, and ranked by their tourism potential to select priority sites for development and diversification. A strong commercial services/concessions program will be needed to develop the new sites, attract tourists and generate revenue.
3. **Share benefits with local communities.** Nepal's protected area regulations require sharing of revenues with local communities and buffer zone user groups. While tourist-spend income multipliers for local households are significant, opportunities exist for Nepal's government to raise these multipliers through their policies; and these opportunities, such as strengthening linkages between tourism value chains and stakeholders in the local economy, need to be explored.

In conclusion, and in the wake of the COVID-19 pandemic, Nepal needs to address losses to its protected area tourism sector in order to regain benefits to buffer zone and local communities and to secure the conservation status of its significant natural assets. To do this, Nepal should champion sustainable and inclusive tourism in protected areas. It should increase public and private investment in protected areas on the growing evidential basis for attractive and far-reaching returns which support both conservation and sustainable development strategies. Finally, in response to a pandemic which has caused development setbacks, Nepal's protected area tourism sector should enact mechanisms to distribute its benefits fairly in the face of poverty and losses incurred by local communities.

1

Introduction

Nepal is a lower-middle income country with a significant agriculture and forestry sector contributing 19.7 percent of GDP (Government of Nepal, 2019). It is at the same time endowed with a wealth of natural resources including snow-capped mountains, abundant rivers, sub-tropical forests, significant biodiversity and wildlife, and pristine, diverse landscapes. The country is part of the Himalayan biodiversity hotspot recognized for its high endemicity and intact forest habitats. With less than 0.1 percent of global land area, Nepal is home to 9.3 percent of global bird species (Government of Nepal, 2018).

Nepal's biodiversity is managed within a network of twenty protected areas covering approximately 23 percent of the country's total land (see Map 1), surpassing the Aichi Biodiversity Target 11 which requires countries to set aside 17 percent of their land area for biodiversity conservation. The protected area network includes twelve national parks, one wildlife reserve, six conservation areas, one hunting reserve, and thirteen buffer zones (see Box 1 for definition of protected area categories) (DNPWC, 2020; Dudley & Stolton, 2008). In addition, over 40 percent of the country is classified as forest land. As a result, Nepal ranks third in the percentage of land area under protected areas in South Asia, after Bhutan and Sri Lanka.

MAP 1. Nepal's Protected Area Network

Source: World Bank Staff using information from Government of Nepal, Department of National Parks and Wildlife Conservation website.

BOX 1. Definition of protected area categories

Protected Area is a clearly defined area, recognized, dedicated, and managed through legal or other means to achieve the long-term conservation of nature with associated ecosystem services and cultural values (Dudley and Stolton, 2008). They range from Category I to Category VI on a declining scale of regulation.

National Parks are Category II protected areas. They are defined as large natural or near-natural areas set aside to protect large-scale ecological processes, species, and ecosystems characteristic of the area, and to provide environmentally and culturally compatible spiritual, scientific, educational, recreational, and visitor opportunities. In Nepal, these areas are defined under the National Parks and Wildlife Conservation Act, 2029 (1973) (NPW Act [1973]) as "an area set aside for the conservation, management and utilization of flora, fauna and scenery along with the natural environment."

Buffer Zones lie between core protected areas and the surrounding landscape, and are created to enhance the protection of a specific conservation area. Within buffer zones, resource use may be legally or customarily restricted, often to a lesser degree than in the adjacent protected area to form a transition zone. In Nepal, buffer zones were formally established in 1998, and 12 protected areas now have buffer zones (Budhathoki, 2004). Buffer zone user committees are groups formed after the fourth amendment of the NPW Act (1973) was passed in 1991 (2048 - Nepali Year) to support local communities and wildlife conservation. The law states that up to 30–50 percent of the earnings from "a national park, reserve or conservation area may be expended, in co-ordination with the local authorities for community development of local people," often in coordination with user committees.

Conservation Areas are defined under the NPW Act (1973) as "an area to be managed according to an integrated plan for the conservation of natural environment and balanced utilization of natural resources." User rights are granted by Local Conservation Area Management Councils (CAMC) to Consumer Group(s) representing households residing under the Village Development Committee within a Conservation Area.

Wildlife Reserves, defined under NPW Act (1973) as "an area set aside for the conservation and management of wildlife resources and their habitats," have a fee system enforced for regulated use of resources by local communities. User rights are granted to community and indigenous groups for controlled access to resources (e.g., fishing rights and collection of fallen trees, wild vegetables, grass etc.).

Hunting Reserves are areas "set aside for the management of wildlife for allowing hunters to hunt them," (NPW, 1973), usually in high-value ecosystems set aside for multi-use management and conservation of flora and fauna, and used for sports hunting. Controlled wildlife hunting is allowed for Nepalese and foreign hunters. There is only one hunting reserve in Nepal.

Protected areas are also the backbone of Nepal's tourism sector, a key contributor to Nepal's economy. Contributions to the economy are **direct** in the form of visitor spending on park fees, hotels, transport, leisure and recreational services. This results in local job creation and employment. Additional jobs and economic activity are supported when businesses such as tourism operators and tourism employees purchase supplies and services from other local businesses, thus creating **indirect** effects of visitor spending surrounding the park. The government of Nepal reports that direct earnings from tourism amounted to the foreign equivalent of 67.09 billion rupees (US$590 million) in FY 2017/18, representing 2.2 percent of GDP (Government of Nepal, 2019). Accounting for both direct and indirect economic contributions, the World Travel and Tourism Council (WTTC), estimates that the contribution of travel and tourism to Nepal's GDP in 2019 was US$2.1 billion, representing 6.7 percent of GDP and 334 million jobs (WTTC, 2021).

Over 45 percent of the tourists to Nepal visit the country's protected areas (Government of Nepal, 2018). Thus, protected areas play a significant role in driving tourism to Nepal and contributing to the country's economy. Visitors, however, predominantly visit only four protected areas: in 2017–2018, about 85 percent of Nepal's 700,000 protected area tourists visited Shivapuri-Nagarjun National Park (close to Kathmandu), Annapurna Conservation Area, Chitwan National Park, and/or Sagarmatha National Park, where Mount Everest peak is located (World Bank, 2020).

Protected areas in Nepal face a number of challenges, despite their popularity among visitors. Large infrastructure projects – be it expansion of the national highway network, or hydropower projects and related distribution lines – are encroaching on protected areas. Because over a million people are dependent on resources in buffer zone community forests, conflicts arise over land use and contribute to the degradation of protected areas. Local communities that have historically used these lands often collect firewood and graze animals in them. This happens in part because boundaries of protected areas are not always clearly demarcated (Bhattarai et al., 2017; Thakali et al., 2018). Greater participation of local communities in management of buffer zones, as established through successive legislation, has reduced the scale of this

challenge. This community-centric management approach has produced measurable results: in 2011, Nepal became the first country to record a year in which no rhino were poached, a record which was upheld over the following three years (Acharya, 2016).

Although community-centric protected area management has improved conservation outcomes, human-wildlife conflict poses a threat to wildlife and community livelihoods. Crop damage is the most common consequence of human-elephant interactions in Nepal, but human fatalities also occur (Acharya et al., 2016; Pant et al., 2016). These conflicts are increasing, particularly outside protected areas, due to wildlife habitat fragmentation and degradation, encroachment, and livestock predation, among others (Acharya et al., 2016). A recent study of Chitwan National Park reported 4,014 incidents of wildlife attacking humans and livestock, and damaging property between 1998 and 2016 (Lamichhane et al., 2018); over US$400,000 was paid to victim's families as compensation over this period.[1] Continued focus on community engagement in protected area management, and programs to increase the benefits derived from protected areas, particularly from tourism, will be critical to increase local support for conservation and to achieve development goals.

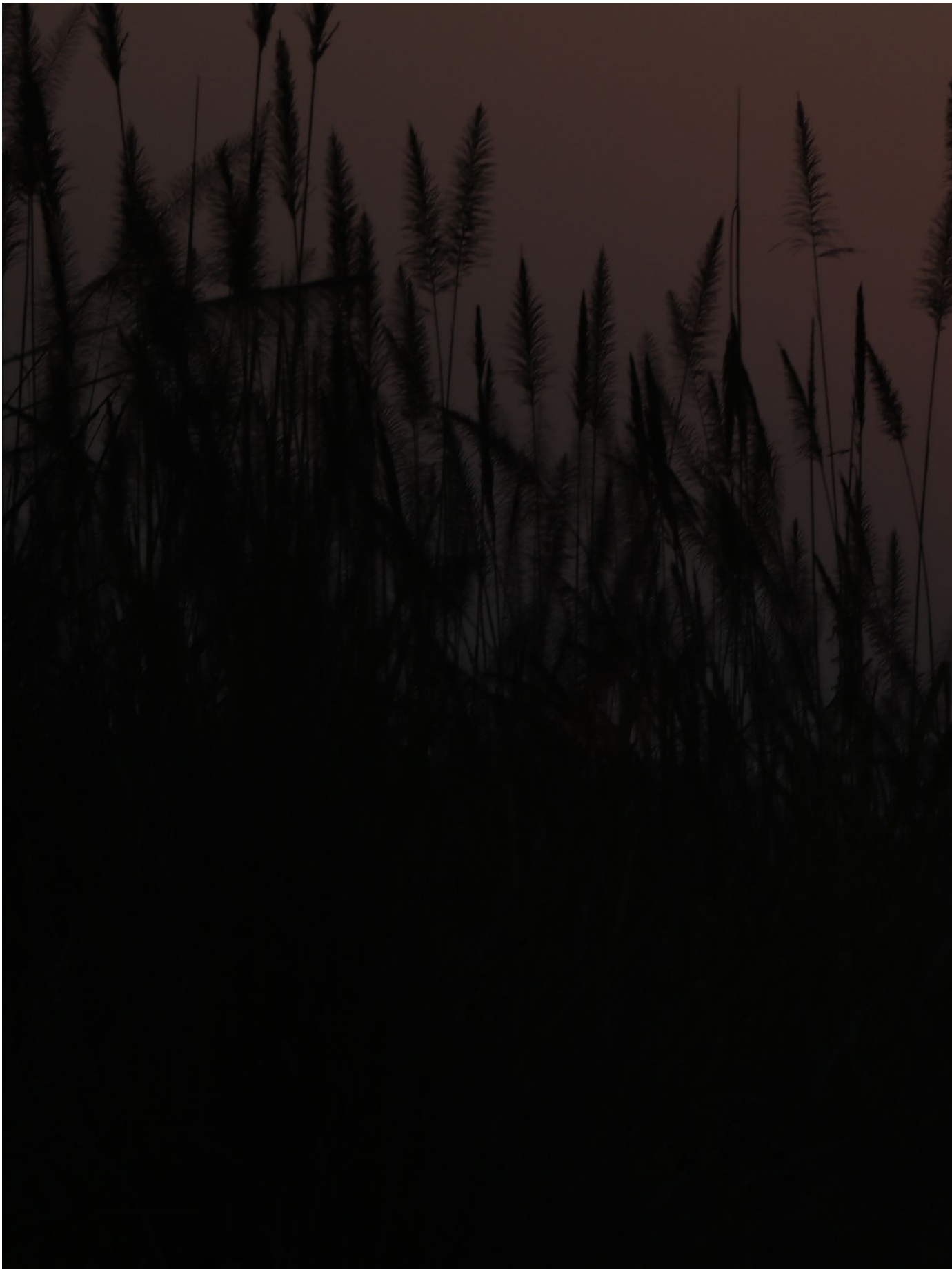
Another challenge to protected areas is insufficient funding and human resources for protected area management. Protected area managers do not have enough funds to maintain and enhance the effectiveness of protected areas, or to implement management activities such as targeted removal of trees to maintain grasslands for herbivores, fire management, and removal of invasive species. Protected areas also lack infrastructure such as visitor centers and well-maintained trails for staff and visitors. Although the number of protected area managers is growing, their experience pertains to wildlife management and biodiversity conservation, and not the challenges related to tourism services and impacts (Bhattarai et al., 2017). Protected areas that lack visitor management strategies have contributed to a growing issue of solid waste management.

The challenges facing Nepal's protected areas are not unique. Globally, governments fail to prioritize investments in protected areas, in part because these investments are seen to generate conservation benefits but not to further development goals. Scarce public resources are instead allocated to competing development needs. But protected areas can provide development opportunities, as noted above, and generate returns on public investments that far exceed the amounts spent. In the United States in 2019, an annual investment of US$3 billion of public resources in the National Parks System resulted in an estimated contribution to GDP of US$41.7 billion through visitor spending (Cullinane, Thomas & Koontz, 2020). Similarly, in 2018, Parks Canada generated a contribution to GDP of US$3.1 billion, and tax revenues of almost US$0.4 billion through a public investment of approximately US$1 billion (Parks Canada, 2019). Moreover, investments in protected areas can generate significant benefits for local economies through job creation and income generation, lifting households out of poverty and providing them with incentives to support conservation. US Parks are estimated to support 329,000 jobs in gateway communities, and Parks Canada 40,469 jobs.

However, governments often lack evidence on the economic impacts of protected area tourism on local and national economies, making it difficult to argue for public expenditure on conservation and development. **The objective of this study is to make the economic case for public investment in protected areas by estimating the total direct and indirect benefits to local economies from tourism in protected areas in Nepal.** Such an estimate of total economic impacts can strengthen the economic case for public investment in protected areas, much like public investments in roads and other forms of infrastructure and assets. The study also estimates the benefits to local communities, and poor and non-poor households, to understand the impact of tourism in protected areas on the incentives of communities to support conservation programs, and the potential of protected areas to improve household incomes.

This study includes a careful assessment of the full range of impacts to the local economy, including through expenditures made by households and firms who benefit from tourism through employment or local tourism-related business endeavors. It estimates the income created around protected areas per visitor and per dollar spent by visitors (the income multiplier from tourism in protected areas), and the rate of return per rupee invested by the government in protected areas like national parks. The study also provides estimates of the economic impacts of human-wildlife conflict and the COVID-19 pandemic, and quantifies the possible effects of government policies to increase local benefits from protected-area tourism.

1 Elephants, leopards and rhinoceros were the top three species involved.



2

Background

2.1 Policy and Institutional Context

Nepal has established a comprehensive legislative, policy and institutional framework to support biodiversity conservation. Protected area management formally began in 1973 with the enactment of the National Parks and Wildlife Conservation Act (NPWCA). The Department of National Parks and Wildlife Conservation (DNPWC) was subsequently established in 1979 under the Ministry of Forests and Soil Conservation (MFSC) (now known as the Ministry of Forest and Environment - MoFE) and made responsible for the overall management of protected areas in Nepal.

During the early years of conservation, Nepal enforced strict laws that denied local people access to resources within protected areas (Budhathoki, 2004). With changing socio-political and economic conditions, and growing conflicts with local communities, participation of local communities in protected area management was gradually increased.

In 1979, the Himalayan National Parks Regulations were introduced to allow settlements inside parks and to give local households regulated access to timber and fodder resources. Subsequently, in 1989, conservation areas were permitted, enabling multiple land uses within protected areas. Moreover, 100 percent of the revenue from tourism and other activities was allocated to conservation area managers for conservation and community development activities (Thakali et al., 2018).

In 1994 the government amended the NPWCA to authorize park authorities to declare buffer zones on the peripheries of protected areas, with fewer restrictions on natural resource use, and with mechanisms for benefit sharing of tourism revenues. The Buffer Zone Management Regulations (1996) allowed for 30–50 percent of park income to be channeled to local communities living in buffer zones for community development and natural resource management. The Buffer Zone Management Guidelines (1999) allowed user committees to spend 30 percent of their annual funds on community development, 30 percent on conservation, 20 percent on internal income and skills development, 10 percent on conservation education, and 10 percent on administration (Budhathoki, 2004).[2]

By endorsing the concept of conservation and development, DNPWC involved communities in integrated planning for protected areas, and in some cases even allowed NGOs to manage protected areas, as in the case of the King Mahendra Trust for Nature Conservation (now called National Trust for Nature Conservation). This decentralization changed the paradigm from “fortress conservation” to a people-centric approach to conservation in Nepal.

The MoFE and the DNPWC also play key roles in the development of tourism in protected areas, which is strictly regulated. The NPWCA provides, in very general terms, guidance on the operation and regulation of tourism concessions under Section 6 of the Act. The MoFE issues permits to the private sector to establish hotels at certain sites in protected areas. These agreements are typically for 10–15 years. Similarly, according to the Forest Regulations of 1995, the MoFE can hand over leasehold forests to the private sector for tourism activities.[3]
However, in recent years many of these contracts were either not renewed, or rescinded, following a Cabinet Committee decision that hotels inside the park posed a threat to wildlife.[4] Locally owned and operated lodges do not operate in buffer zones, and while there is basic accommodation (e.g., hostels), these facilities do not appeal to mid- and high-value visitors.

Tourism is allowed and encouraged in community forests in buffer zones, and many of them offer a variety of activities. For example, in community forests, user groups may develop activities such as elephant walks, which are often outsourced to operators that charge an entrance fee. The Buffer Zone Management Regulation (1996), however, prohibits land occupation and tree cutting, which limits the development of tourism infrastructure, such as lodges, by local communities within forest areas. The Forest Act also prevents community forest user groups from mortgaging or otherwise transferring their use rights, which precludes partnerships with private sector concession or lodging operators.

2 Each buffer zone is divided into sectors, and a user committee is established in each sector to manage conservation and development.

3 The concept of leasehold forestry was implemented in 1993 to alleviate poverty and improve ecological conditions. To achieve these objectives degraded forest is leased for 40 years (renewable) to groups of poor households as a resource for their exclusive use.

4 Seven lodges in Chitwan National Park had their permits revoked in 2015 by the MoFE (Basnet, 2016).

2.2 Study Site

The case study site is the Chitwan National Park (see Map 3), a key tourist attraction.[5] The Park was declared a UNESCO World Heritage Site in 1984, and is located on Nepal's southern border, where it is contiguous with the Valmiki National Park, a tiger reserve in Bihar, India. The park covers an area of 953 square kilometers, and the buffer zone covers 729 square kilometers (Government of Nepal, n.d.). To the east of Chitwan lies Parsa National Park. Together, the three parks are known as the *Chitwan-Parsa-Valmiki* Tiger Conservation Unit (TCU), which provide 2,075 square kilometers of largely contiguous protected land with a key focus on tiger conservation. The Chitwan Valley consists of primarily (80 percent) grasslands and subtropical forests. The Park is home to over 700 species of wildlife, including species that are endangered, such as the royal Bengal tiger, the gharial crocodile and the Asian elephant, and vulnerable species including the one-horned rhinoceros and sloth bear. Common tourist activities in the region include wildlife and bird viewing, jeep/elephant safaris, jungle walks, canoeing, and visits to nearby lakes and the Rapti River.

In 1996, the government established the first buffer zone around Chitwan National Park, a 750 square kilometer area consisting of forests and private lands (DNPWC, 2019). The buffer zone includes seventy community forests covering approximately 11,000 ha managed by local buffer zone user committees. Beeshazari Lake, a Ramsar wetland site and popular tourist destination inside the buffer zone, is managed by several user committees. Prior to the COVID-19 crisis, the number of visitors to Nepal was increasing rapidly, rising 2% in 2018 over the previous year (Government of Nepal, 2020), and contributing to the development of the Chitwan District. This increase in tourism also led to a growing number of hotels, guest houses, and hostels around the buffer zone.

The study begins with the definition of the "local economy" (see Box 2). For this study, three municipalities neighboring Chitwan National Park constitute the local economy. Bharatpur municipality is located to the northeast of the park, across the East Rapti River. Khairahani and Ratnanagar municipalities border the Park at its main entrance, near the town of Sauraha, and extend northward to Mahendra National Highway. This area is heavily impacted by tourism, and hosts many hotels and guest houses. Bharatpur municipality has fewer visitors, but community forests and homestay operations have boosted the region's tourism in recent years.

2.3 Government Expenditures and Revenues

The top panel of Table 1 summarizes the revenue that the Government of Nepal receives from Chitwan National Park. Park visitor fees, charged to allow visitors to enter the core area of the park, are the largest revenue source – NPR 205 million in 2018–2019 (US$1.8 million). This does not include revenues generated from entrance fees to community forests outside the national park. Fees paid by lodges in the park, and other concession fees generate NPR 37.9 million (US$0.33 million).

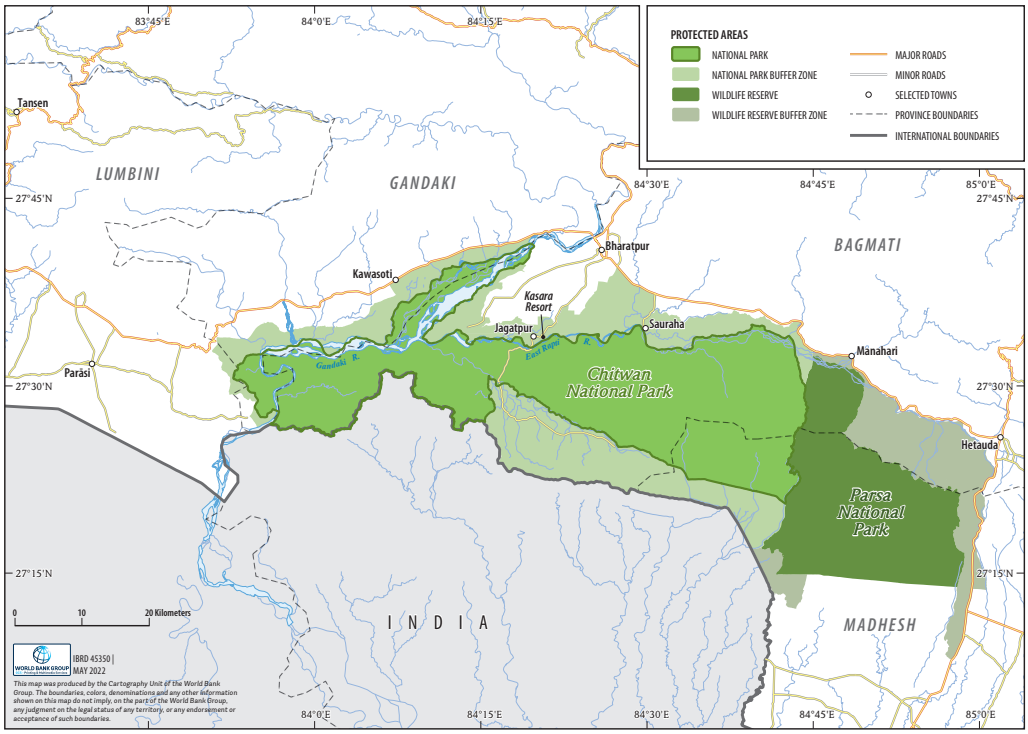
The lower panel of Table 1 shows park management expenses, including payments to buffer zone user groups. Notably, the *cost to the Government of Nepal of running the*

BOX 2. What is a Local Economy?

A local economy could be a village, a collection of villages, a town, region, or even a country. The larger the demarcation, the more economic activity and economic benefits that will likely be captured. How the "local economy" is defined depends on the goals of the study. To be effective, conservation policies that create protected areas also rely on communities around protected areas to act as stewards of biodiversity. In Nepal, people living in buffer areas need to see the benefits—including economic benefits—of preserving wildlife. In this study, therefore, the local economy is defined as the villages within the municipalities adjacent to Chitwan National Park, namely, Khairahani and Ratnanagar municipalities. Moreover, because village households and businesses rely on nearby market towns for goods and services, Bharatpur municipality is also included as part of the local economy.

5 Chitwan National Park was selected as the study site after consultation with MoFE, DNPWC, and NTNC. The criteria for selecting the site included formal designation as a protected area, and its importance as a tourist attraction.

MAP 3. Chitwan National Park and Buffer Zones



Source: DNPWC - Chitwan National Park Website

park is more than double park revenues. The biggest expenditure category is wages for administrative staff, park wardens, guards, other employees, and the Nepalese Army unit posted in Chitwan to deter poaching. In 2019, the cost of wages was approximately NPR 380 million (US$3.3 million), of which 75 percent covered the costs of army personnel. Other expenditure categories included investment in tourism infrastructure and promotion, park maintenance (grassland and landscape management, for example), payments to buffer zone user groups, and payments to households which have suffered losses from animal incursions.

This analysis of revenues and expenditures provides only a partial assessment of the economic impact of the national park on the local economy. The next section describes a methodology to estimate these impacts more broadly, by including direct and indirect impacts on the local economy and communities.

TABLE 1. Government of Nepal Revenues and Expenditures in Chitwan National Park (2018–2019)[1]

Revenue or Expenditure Type	NPR	US$[2]
Revenues		
Park visitor fees	205,000,500	1,798,250
Fees paid by lodges in the park	35,000,950	307,026
Concession fees	2,964,000	26,000
Other sources	51,501,189	451,765
Total revenue	294,466,639	2,583,041
Expenditures		
Wages*	380,777,939	3,340,157
Tourism infrastructure and promotion	74,105,900	650,051
Elephant center expenses	25,213,566	221,172
Grassland and landscape management	32,598,360	285,950
Regional Wildlife Conservation Program	10,889,943	95,526
Buffer zone management program	76,636,000	672,246
Relief package to wildlife victims	15,913,173	139,589
Other**	36,441,974	319,666
Total expenditure	**652,766,855**	**5,726,025**
GoN revenues minus expenditures	(358,300,216)	($3,142,984)

1 The fiscal year in Nepal starts and ends in June.

2 Conversions from NPR to US$ use an exchange rate of NPR 1 is US$0.0088 as of December 1, 2018.

* This includes wages for the Nepalese Army unit stationed at Chitwan to combat poaching, which constitute 73 percent of wage expenditures.

**Other expenses include financial management and accounting, miscellaneous, and capital expenses of the army (building construction, infrastructure development, etc.)

Source: Study team, Government of Nepal

3

Methodology

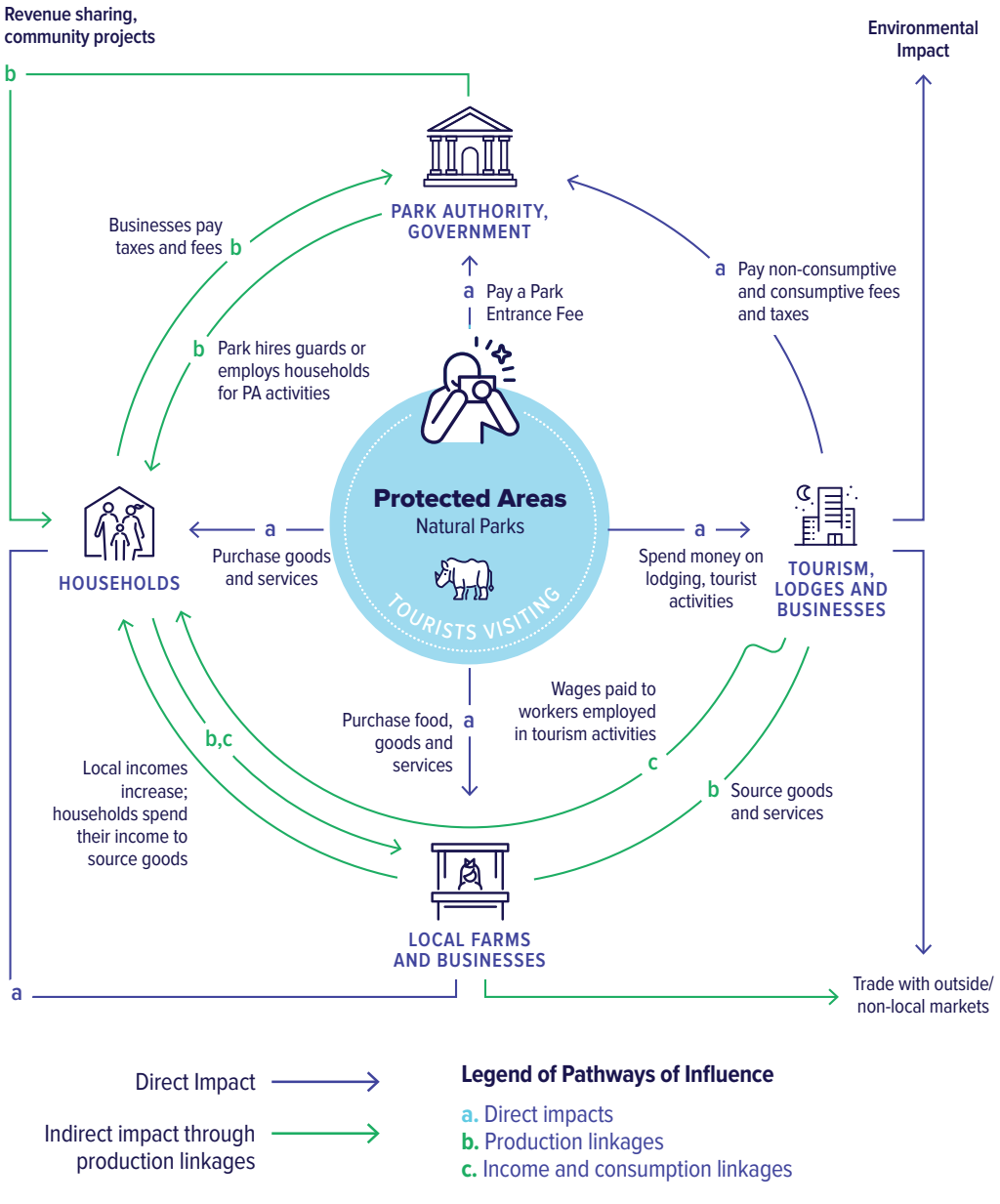
3.1 Pathways for Economic Impacts of Protected Areas

As noted, tourism in protected areas can impact local economies through direct (shown by arrows a in Figure 1) and indirect channels. Indirect channels can, in turn, be broadly classified into two types: production linkages (shown by arrows b in Figure 1) and income and consumption linkages (shown by arrows c in Figure 1).

3.1.1 Direct Impacts

Protected areas attract tourists who spend money on tourism services. Tourists also visit community forests managed by buffer zone user committees. Besides charging entrance fees to community forests, several villages offer homestays, in which small businesses provide accommodation (a small room/house) to visitors inside local villages. Instead of operating separately, homestay owners often rotate clients so that all villagers offering homestays receive their fair share of customers. Tourists also spend money at hotels and restaurants near the national park and buffer zone, partake in activities such as safari drives, walking safaris, and elephant walks, and purchase goods and services from local businesses and households. Finally,

FIGURE 1. **Economic Impact Pathways of Protected Area Tourism**



tourists pay park entrance fees that accrue to the Government of Nepal. *A tourism impact analysis based on tourist expenditures would stop here and would only capture a fraction of the impact of protected area tourism on the local economy.*

However, protected areas also affect the local economy directly by restricting resource extraction—in the case of Nepal's national parks, by limiting natural resource use, for example, for firewood or grazing. By regulating these activities, however, protected areas may have an adverse effect on the incomes of households that rely on these resources. When wildlife in parks is protected, growing populations tend to disperse into the buffer zones around them. The benefits of larger wild animal populations include opportunities for tourism in buffer zone community forests. Of course, larger wild animal populations also increase the likelihood of human-wildlife conflicts, as when elephants raid farmers' fields or predators attack livestock. Therefore, the balance of costs and benefits on income from the wildlife resource is not always clear, but these impacts need to be estimated in addition to the direct impacts of tourism.

3.1.2 Indirect Impacts Through Production Linkages

As tourism expands and resource extraction contracts, community demands for intermediate inputs will change, producing a first round of indirect effects in the local economy though production linkages. For example, more tourism increases demand for hotels and restaurants, and therefore greater demand for everything from food and beverages, to more equipment and staff. To the extent that hotels, restaurants, and other tourism service providers hire workers from local households and purchase goods and services from local farms and businesses, there will be positive production linkage effects on the local economy. Inputs purchased from outside the local economy will create positive linkages for other parts of the country, or potentially in other countries, and not for the local economy.

Similar impacts are realized when the park hires local rangers or employs local households in park management, or when the government shares income from entrance fees with buffer zone user groups. These funds, along with tourism revenue from community forests, are in turn used to buy local goods or pay employees from local households. Tourism fees collected by committees can be substantial. In 2019, the entrance to Beeshazari Lake, which is under buffer zone community management, recorded 130,000 visitors and charged NPR25 (US$0.2) per domestic tourist, NPR100 (US$0.8) per SAARC[6] tourist, and NPR200 (US$1.7) per foreign tourist. Around Chitwan, as in other buffer zones, user committees are authorized to use these funds for a variety of programs: cultural events promoting conservation, agricultural inputs, information materials, infrastructure (such as fences) and compensation for farmers whose crops or livestock are damaged by wildlife. When tourist services, protected area management, and the activities of user committees expand, they create positive indirect impacts on the local economy. On the other hand, limits on resource-extraction may have an opposite effect, especially if resource harvesting generates money for local purchases. *An input-output (IO) analysis would stop here, and only capture the direct impacts and the indirect impacts through production linkages*.

A critical issue when analyzing these production linkages is whether local supplies of goods and services can expand to meet growing demands. If not, growth in demand may lead to higher prices, and reduce the real, or inflation-adjusted income gains from protected areas. Estimation of indirect impacts must take these potential inflationary effects into account.

3.1.3 Indirect Impacts Through Income and Consumption Linkages

Production in the local economy triggered by tourism in protected areas generates incomes in the form of wages and profits. Wages of workers employed in tourism potentially have a positive indirect effect on the local economy as they trigger fresh rounds of spending. Wages and profits from locally owned tourist activities, and from local businesses that supply the tourism industry flow into local households which in turn spend this income in the local economy. However, restrictions on resource use may lead to negative indirect income effects from protected areas.

As local activities expand to supply new household demands, new rounds of increased input demand, income, and household expenditures follow, creating knock-on growth in income

6 South Asian Association for Regional Cooperation comprising Afghanistan, Bangladesh, Bhutan, India, the Maldives, Pakistan, Sri Lanka and Nepal.

and demand in the local economy. Successive rounds of impacts become smaller and smaller, and the total (direct and indirect) effect of the expansion in tourism converges to an income multiplier, defined as the change in local household income per unit of fresh cash infusion into the economy through tourist spending. If local market linkages are strong, each dollar of tourist spending may increase local income by more than a dollar. Local income multipliers are not necessarily greater than one, because new demands created by tourist spending could be met by purchases from other parts of Nepal, or from abroad. In this case, the income "leaks out" from the local economy to other places, creating benefits there instead. If the supply of goods and services in the local economy is responsive or elastic, prices will not change much as local demand increases. Otherwise, rising local demand could raise prices, causing real, or price-adjusted multipliers to diverge from nominal (cash income) ones. *The GE model captures all of these effects, the direct impacts and both channels of indirect impacts.*

3.2 LEWIE Model

Quantifying the direct and indirect impacts of protected area tourism on local economies therefore requires an applied GE approach. For this study, a GE method called "local economy-wide impact evaluation" (LEWIE) was used.[7]

LEWIE uses simulation methods to estimate the direct and indirect (or "spillover") effects of protected area-induced tourism. LEWIE uses a structural approach that integrates models of actors (businesses and households) within a GE model of the local economy. Businesses include locally owned firms, and businesses not owned by locals but typically employing some local workers and purchasing some locally-supplied inputs. There is a rich tradition in economics of using micro-survey data to construct models of agricultural households that are both producers and consumers of food (Singh et al., 1986). LEWIE begins by using micro-survey data and econometric methods to construct models of firms, households, and household-farms within local economies. These micro-models are then "nested" within a GE model of the local economy, drawing from the literature on GE modeling in economics (Dixon & Jorgenson, 2013). The models of firms describe how businesses combine various factors (e.g., hired labor, family labor, land, capital) and intermediate inputs (fertilizer, seed, and a variety of purchased inputs) to produce an output (corn, prepared meals, a service), which may be consumed locally, or sold. The household and household-farm models describe each household group's productive activities, income sources, and consumption/expenditure patterns. In a typical model, households participate in crop and livestock production, resource extraction (e.g., fishing), retail, and other business activities, as well as in the labor market. Production functions for each activity are the recipes that turn inputs into outputs.

Micro-survey data are required as inputs to the LEWIE model and play two main roles in its construction. They provide initial values for all variables in the model (inputs and outputs of each production activity, household expenditures on each good and service). The data are also used to econometrically estimate model parameters for each household group and production sector, together with standard errors on these estimates. The initial values and parameter estimates are captured in a spreadsheet designed to interface with GAMS (Generalized Algebraic Modeling System) software used to program the LEWIE model.

7 A basic reference for this methodology and examples of recent studies using the LEWIE model can be found at http://beyondexperiments.org/ (Taylor & Filipski, 2014)

3.3 Data Collection

To build the LEWIE model, data were gathered from surveys of tourists, lodges, resorts, and local businesses and households. Surveys in November 2019 obtained information on production, income, expenditures, and the locations of transactions (i.e., inside or outside the local economy). The household and local business surveys were entered onto tablets using the Open Data Kit (ODK) platform for Android. A team of 17 Nepalese enumerators were trained to carry out the business and household surveys (see Box 3).

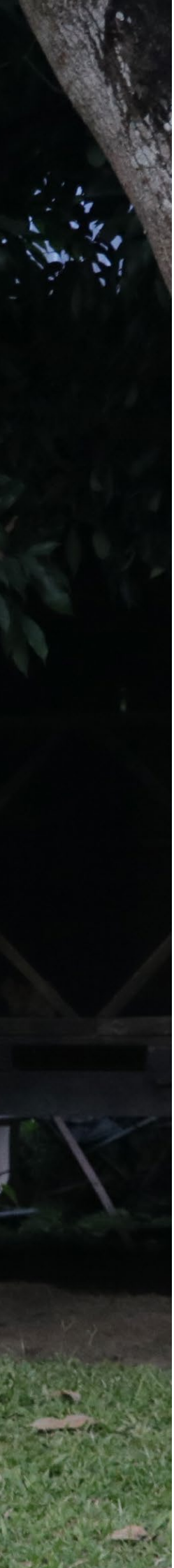
The primary survey was conducted in the Khairahani, Ratnanagar and Bharatpur municipalities. Roughly 50 households were interviewed from each randomly selected village, resulting in a final sample size of 596 households from 12 villages. Additional details on the survey methodology and data collection methods are provided in Annex 1.

BOX 3. Building Capacity While Doing Research

A team of 14 Nepalese students (6 men and 8 women) from the Kathmandu University and three NTNC staff were trained to carry out the fieldwork for this study. This included a one-week, face-to-face course on the LEWIE methodology, and instruction in how to conduct the detailed household and business surveys with questionnaires programmed onto tablets using the ODK platform. After a pilot, the team spent two weeks in Chitwan National Park collecting data. All enumerators were awarded certificates of completion for the LEWIE survey training course and fieldwork.

4

Data Summary



4.1 Tourists

The Chitwan region has experienced rapid growth in tourism to the national park and surrounding areas in recent years. While the 2015 earthquake halved the number of visitors from the previous year, tourist numbers recovered from 2016–2018 and continued to grow in 2019 (see Table 2). In 2020, the COVID-19 pandemic brought Chitwan tourism to a standstill.

International tourism numbers do not include domestic visitors to the park, who in 2018–19 accounted for 17 percent of the total number of visitors (study team, Government of Nepal). An estimated 300,000–400,000 additional domestic and foreign visitors went to community forests managed by buffer zone user committees, generating revenues for local economies (Paudel et al., 2007). Domestic tourists are charged NPR 150 (US$1.3), SAARC citizens NPR 1000 (US$8.6) and international tourists NPR 2000 (US$17) to enter the national park.

Seventy tourist groups were surveyed, and the data show that, on average, visitors arrived in parties of 3.1 and stayed 3.25 nights at Chitwan (Table 3). Most—6.5 out of 10—purchased inclusive packages, at an average cost of NPR 10,187 (around US$85) per party. The package price primarily reflects costs of tours and guides, and does not include accommodation.

Table 4 provides a breakdown of the average Chitwan visitor's expenditures based on the survey. Documenting these expenditures is important not only because they describe how tourists spend their money, but also to categorize tourist spending across economic sectors in the LEWIE simulations presented below.

Due to disruptions in data collection from COVID-19 lockdowns, international tourists make up only 12 percent of the sample and are therefore under-represented. Given that spending patterns and amounts differ between domestic and international tourists, this presents a challenge for the study. To correct for this bias, a more representative sample was constructed using known ratios of international to domestic tourists from the previous year (2019) to increase the weight (or importance) of foreign tourists in the sample. Weighted results are presented in the third column of Table 4, which are used as inputs in the LEWIE model.

On average, each tourist spends NPR 3,332 (US$29.3) per day during their stay in Chitwan, with a third going to accommodation and food at a hotel or lodge. They spend an average of NPR 625 (US$5.5) on tours inside and outside the park each day, NPR 750 (US$6.6) per day on local transport, NPR 375 (US$3.3) on retail purchases and NPR 148 (US$1.3) on local services.

TABLE 2. Number of International Tourists to Chitwan NP by Fiscal Year

Year	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019
Tourists	178,000	87,391	139,125	152,671	211,888

Source: Study team, Government of Nepal

TABLE 3. Tourist Characteristics and Packages

	Party Size	Nights Stayed	Purchased Package	Package Cost*	Transportation Cost to Chitwan
Mean	3.11	3.25	0.65	10,187.5	1,785.5
SD	(2.52)	(1.65)	(0.48)	(8,831)	(2,940)

*Note: Package costs only reported for tourists who purchased a package.

TABLE 4. Chitwan Visitor Expenditures by Category

Total Expenditures		Expenditures based on tourist survey		Expenditures per tourist per night		Expenditures per tourist per night (weighted)	
		Nepali Rupees	USD	Nepali Rupees	USD	Nepali Rupees	USD
	Mean	10359.0	91.1	3191.8	28.1	3332.0	29.3
	SD	(9917.3)	(87.3)	(3055.8)	(26.9)	(3714.7)	(32.7)
By Category							
Accommodation & Food	Mean	4,362.2	38.4	1340.5	11.8	1192.7	10.5
	SD	(3726.1)	(32.8)	(1147.4)	(10.1)	(1101.9)	(9.7)
Tours	Mean	2306.1	20.3	715.7	6.3	624.7	5.5
	SD	(2680.9)	(23.6)	(829.3)	(7.3)	(783.8)	(6.9)
Transport*	Mean	1340.5	11.8	409.0	3.6	749.7	6.6
	SD	(5861.8)	(51.6)	(1806.2)	(15.9)	(2,885.4)	(25.4)
Retail Goods	Mean	1101.9	9.7	340.8	3.0	374.8	3.3
	SD	(2112.9)	(18.6)	(647.5)	(5.7)	(693.0)	(6.1)
Services	Mean	533.9	4.7	170.4	1.5	147.6	1.3
	SD	(999.7)	(8.8)	(306.7)	(2.7)	(284.0)	(2.5)
Other	Mean	715.7	6.3	215.8	1.9	243.0	2.2
	SD	(670.2)	(5.9)	(204.5)	(1.8)	(249.9)	(2.2)
N		70		70		70	

4.2 Tourism Businesses

Hotels near Chitwan National Park are moderate in size, with an average capacity of 51.5 persons (see Table 5). During the peak tourist seasons, usually autumn and spring, hotels have a 56 percent occupancy rate, which falls to 27 percent in off-peak seasons. Operational costs of these hotels vary widely, with an average around NPR 11.4 million (US$ 100,000). Finally, just over a quarter (26 percent) of inputs for the hotels (by value) are purchased from outside the local economy, so leakage from the local economy is low.

TABLE 5. Hotel Summary Statistics

	Capacity			Expenditure	
	Maximum guests	Peak (proportion)	Non-Peak (proportion)	Total (million NPR)	Outside (proportion)
Mean	51.5	0.56	0.27	11.4	0.26
SD	(23.6)	(0.18)	(0.16)	(14.8)	(0.08)

4.3 Households

The household survey provides rich data on household characteristics, economic activities, and spending, which shape economic impacts in local economies around the park. The analysis disaggregates households into “poor” and “non-poor” groups based on annual expenditure information from the survey. Households with less than US$1.90 (PPP-adjusted) of

per-capita expenditure per day were classified as "poor", and based on this criterion, forty households, less than 7 percent of the sample, fell into this category.

Socio-demographic characteristics, together with a summary of household participation in income earning activities are presented in Table 6. On average, the household size for the sample is just under 5 individuals. Poorer households tend to be larger, with slightly older and less educated heads. Overall education levels are low, especially for older cohorts (52.6 percent of individuals over the age of 40 reported no formal schooling). Most households grow crops and roughly half own livestock. The biggest observable difference in income generating activities between poor and non-poor households is participation in entrepreneurial activities. Twenty-five percent of non-poor households in both regions own and operate some form of business, compared with 7–8 percent of poor households. Roughly half of all households have at least one wage worker.

TABLE 6. Poverty Status and Household Demographics and Activities by Region

Location	Household Demographics				Percentage of Households participating in:				
	Summary Statistics	Size	Head Age	Head Educ	Crops	Livestock	Fishing	Business	Wage Work
Khaira/Ratn Non-poor	Mean	4.76	49.5	4.81	0.85	0.68	0.03	0.25	0.46
	sd	(1.98)	(14.1)	(4.52)	(0.36)	(0.47)	(0.16)	(0.44)	(0.50)
	N		323				325		
Khaira/Ratn Poor	Mean	8.31	53.5	1.85	0.92	0.62	0.00	0.08	0.38
	sd	(4.66)	(18.1)	(2.94)	(0.28)	(0.51)	-	(0.28)	(0.51)
	N		12				13		
Bharatpur Non-poor	Mean	4.95	49.3	4.15	0.70	0.66	0.04	0.25	0.55
	sd	(1.98)	(13.8)	(4.33)	(0.46)	(0.47)	(0.19)	(0.43)	(0.50)
	N		232				232		
Bharatpur Poor	Mean	6.70	52.1	2.19	0.81	0.48	0.04	0.07	0.63
	sd	(3.10)	(12.7)	(3.73)	(0.40)	(0.51)	(0.19)	(0.27)	(0.49)
	N		27				27		

Notes: sd is standard deviation of sample and N is the sample size.

4.4 User Committee Groups

There are six buffer zone user committee groups in the study region, five of which were surveyed to gather information on hiring practices and expenditure patterns. Table 7 summarizes spending by these committees.8

Conservation related activities (not including conservation education) account for 48 percent of expenditures. A substantial percentage of the budget (16 percent) is spent on community development. The remaining budget is usually used to provide compensation payments for human-wildlife conflicts. The surveyed committee groups gave a little over NPR 1,800,000 (around US$15,700) in compensation for crop damage, livestock and human death resulting from encounters with wildlife in 2019. A large percentage of labor hired by user committee groups is locally sourced, as are most of the construction teams and materials.

8 Because the team was unable to gather information on the income that buffer zone community user groups earned directly from tourists, the impacts of this income on the local economy are not captured. Tourist expenditures on hotels and other goods and services is captured, however.

TABLE 7. User Committee Expenditure Summary

Total Annual Expenditure ('000 NPR)		Share of Annual Expenditure on:						Local % of Labor Expenditure		
		Conservation Education	Community Developmen	Conserva-tion	Alternative Income Generation	Manage-ment	Other	Conservation Education	Conservation Labor	Community Development
Mean	16,200	0.02	0.16	0.48	0.05	0.03	0.10	0.92	0.84	0.84
SD	(15,600)	(0.01)	(0.14)	(0.26)	(0.02)	(0.02)	(0.16)	(0.11)	(0.36)	(0.26)

4.5 Local Businesses

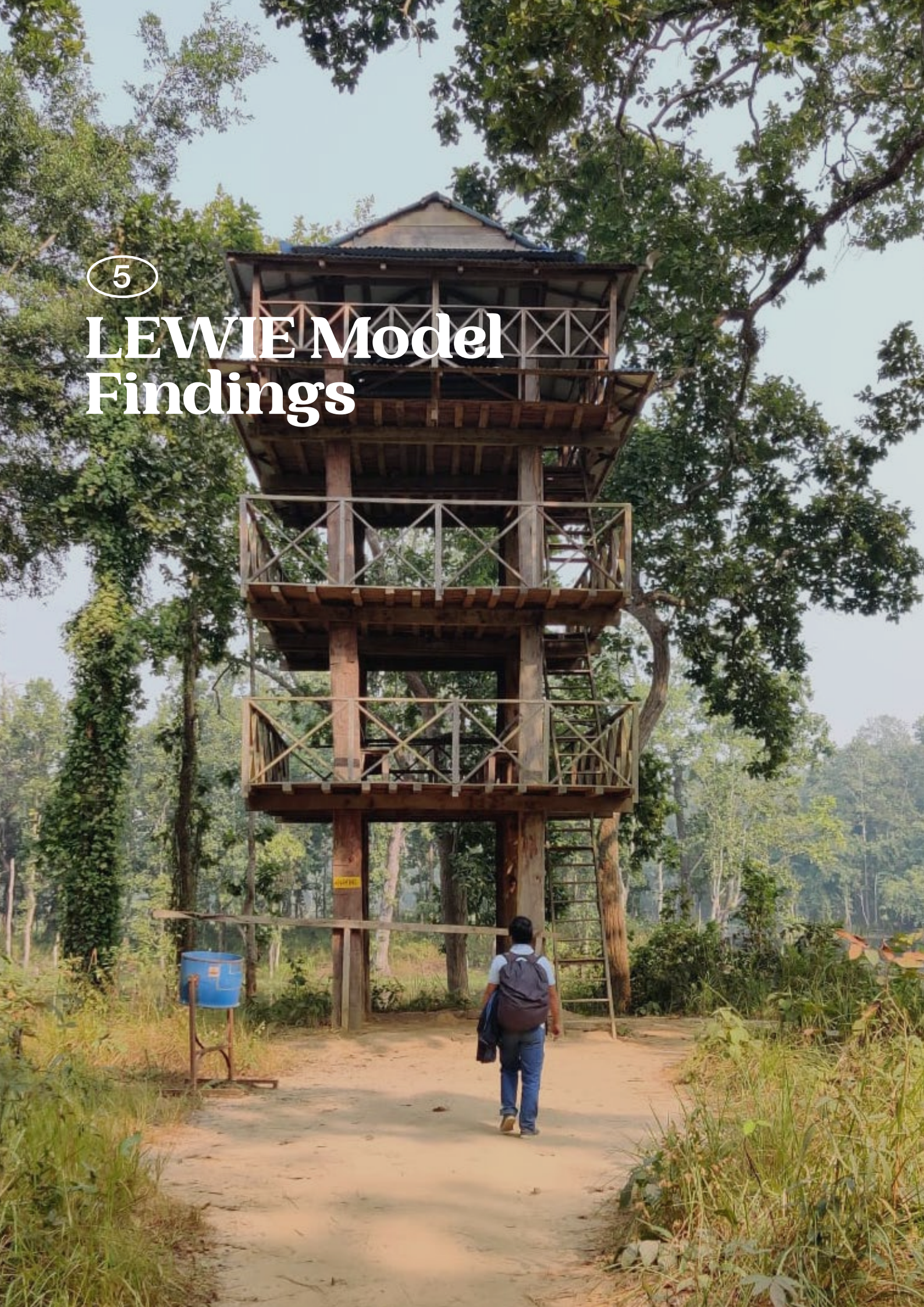
Close to a quarter of households in the survey owned and operated some form of business. Businesses are defined as any kind of entrepreneurial activity, including hawkers, small grocery stalls, market traders, and a variety of roadside vendors. Table 8 reports the shares of each business type at the two sites. Many businesses in Khairahani/Ratnanagar are small retail (grocery shop/vendor) shops (34.8 percent) and hotels, restaurants and bars (14.6 percent), reflecting the popularity of these services with tourists. Construction-related businesses are more prevalent in Bharatpur, constituting 35.9 percent of firms in the sample.

TABLE 8. Distribution of Business Types

Business Type	Khaira/Ratn	Bharatpur
Grocery shop/Vendor	34.8%	20.3%
Food Processing	3.4%	4.7%
Butchery	5.6%	3.1%
Construction	5.6%	35.9%
Clothing/Shoe repairs	4.5%	0.0%
Mechanic/Elec repairs	10.1%	1.6%
Other services	14.6%	25.0%
Hotel/Restaurant/Bar	14.6%	9.4%
N	91	65

5

LEWIE Model Findings



As noted above, the LEWIE model can be used to estimate the direct and indirect impacts of protected area tourism on a local economy, and there are many avenues through which direct and indirect impacts manifest. Data availability determines in large part the extent to which these are captured through the LEWIE model. A summary of these avenues and how they are modeled within LEWIE is provided in Table 9.

Once built, the LEWIE model can be used to quantify impacts on the local economy. Because the model parameters have been estimated econometrically, Monte Carlo methods are used to perform significance tests and construct confidence intervals around the simulated impacts as shown by Taylor & Filipski (2014). For this study, 500 iterations of the simulations for each park were conducted. Additionally, the LEWIE model considers nonlinearities and local price effects.

Simulations require judgements, based on the survey data, about where and how prices are determined (that is, market closure, which is not known with certainty). Sensitivity analysis, combined with the Monte Carlo method described above, was used to test the robustness of simulated impacts to market-closure assumptions.

The impact of protected area tourism on a local economy is estimated in two steps. Step one entails simulating the impact of *an additional tourist* on the local economy. This step also provides an estimate of the income multiplier of *an additional dollar* of tourist spending. The impact is estimated in the second step by multiplying the per-tourist estimate by the number of tourists who visit the park. Comparing this value with public investment in the park also provides an estimate of the rate of return on the public investment.

TABLE 9. Avenues of Impact Captured within LEWIE

Impact	Avenue	Included in LEWIE?	Comment
Direct	Tourist spending at local businesses	Yes	
	Restrictions on resource extraction and positive spillovers from the national park	Yes	These impacts are built into the base run of the model. It is important to note that this version of LEWIE is static, and therefore does not account for changes in the resource base over time and the resultant impact on resource use patterns or tourism opportunities in the buffer zone.
	Impact of human-wildlife conflict	Yes	As per the information provided in the household surveys, crop damage caused by animals (elephants, rhinos and wild pigs etc.) was between 9.3–9.5 percent of total output. This impact is included in the base run using actual harvest data. User committee groups provide compensation to households which have lost crops, livestock or sometimes even human life. This is also taken into account.
Indirect – production linkages	Hiring and local sourcing of goods by tourism establishments	Yes	These linkages are included for hotels, but not for other tourism service providers due to data limitations. Only 2–3 percent of farmers reported selling produce directly to lodges. Most crop sales are through traders and intermediaries who collect from farms and sell on to hotels and other businesses. Hotels, though, source other goods and services from local businesses.
	Hiring and local sourcing of goods by buffer zone user committees	Yes	Buffer zone user groups receive money from park management authorities and from tourists who visit buffer zone community forests; they use this income for conservation and development. Around 30–50 percent of ticket fees are transferred to user groups for their activities.
	Hiring and local sourcing of goods by park managers	Partially	Hiring park staff is captured in the household section of the surveys. Purchases of goods are in theory captured through the business surveys conducted in key markets nearby. However, the park management is not modeled as an independent agent due to data limitations.
	Spillover effects of resource use restriction	Yes	
Indirect – consumption linkages	Expenditures by households based on wages and profits earned through tourism sector linkages	Yes	

5.1 Impact of an Additional Tourist on the Local Economy

Table 10 presents the estimated impacts of an additional tourist on household incomes around the park. Simulations find that *one additional tourist adds NPR 19,299 (US$ 169.3) to total real (inflation-adjusted) income in the local economy*. This income effect is larger than the amount of money the average tourist spends (Table 9). Most of the income gains, NPR 7,558 and 9,294 (US$66.3 and US$81.5) in Khairahani/Ratnanagar and Bharatpur, respectively, go to non-poor households. Incomes of poor households increase modestly, by NPR 432 (US$3.8) in Khairahani/Ratnanagar and by NPR 1,506 (US$ 13.2) in Bharatpur. Resources transferred to buffer zone user committees under benefit sharing agreements have a positive, though small, impact on households, of around NPR 508 (US$4.5) per tourist. User committee groups' revenues come from government transfers from Chitwan National Park ticket fees, and their own ticket fee collections from user forests. Lacking information on aggregate revenue from user forests, it is not possible to further disaggregate the impacts between official (government) and other sources.

Local income multipliers are shaped by tourist expenditures and the openness of local economies. A significant percentage of goods and many of the services purchased by local households and businesses come from outside the local economy. Generally, income spillovers are greater for non-poor than poor households, because non-poor households are more likely to have the assets, including physical, financial, and human capital, to run businesses and in other ways benefit from tourist spending. Though the impacts are smaller, poor households still benefit; these impacts are mostly indirect (few visitors transact directly with poor households), and are thus unlikely to be picked up by studies that do not consider GE impacts on local economies.

As described earlier, tourist spending creates these income impacts by stimulating local demand for goods and services, either directly (as when tourists or hotels buy goods and services from local businesses and households) or indirectly (as when hotels pay wages to local households, who in turn spend this income on locally-supplied goods and services). Table 11 summarizes the impacts of an additional park visitor on production (in value) by local farms and businesses. The largest impact is on sales by local retail establishments, including small shops and supermarkets, which increase by NPR 8,470 (US$74.3). Tourists do not spend a large share of money at local retail businesses (Table 4); however, households' single largest expenditure is on retail. Thus, the impact of an additional tourist on local retail revenue is mostly indirect. The same is true for other sectors. Revenue to service activities increases by NPR 4,761 (US$41.8). The demand for livestock and agricultural products rises by NPR 259 (US$2.3) and NPR 279 (US$2.5), respectively, even though tourists buy little, if anything, directly from local farms. Hotel revenues increase by NPR 1,622 (US$14.2), mostly a direct effect of tourist spending. The value of local production rises by NPR 15,393 (US$135) per additional visitor.

Figure 2 shows the income multiplier, that is, the impact on local household income of each additional rupee that visitors spend. The multiplier captures the direct and indirect effects of tourist spending on local income. It is adjusted for price inflation and thus represents a real-income effect. *An additional rupee spent by visitors at Chitwan National Park raises the total income of households around the park by 1.78 rupees.*

TABLE 10. Local Income Impacts of an Additional Tourist

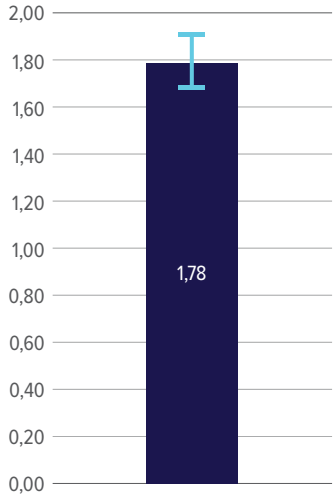
Income Effects of an Additional Tourist	Values in NPR	Values in US$
Average amount spent by an additional tourist[a]	10,825	95.3
Changes in local economy incomes		
Real (inflation-adjusted) Income	19,299	169.3
95% CIs	[18,086, 20,706]	[159.2, 182.3]
Changes in Household Real Incomes		
Khairahani/Ratnanagar Poor	432	3.8
Khairahani/Ratnanagar Non-Poor	7,558	66.3
Bharatpur Poor	1,506	13.2
Bharatpur Non-Poor	9,294	81.5
User Committee Group	508	4.5

a These are amounts spent on lodging and meals, park entry and tours, out-of-pocket spending while visiting the park, and transport to and from the park, which consists of bus fares and other costs paid outside the local economy.

TABLE 11. Production Impacts (in Value) of One Additional Tourist

Production Effects (in Monetary Value) of One Additional Tourist	Values in NPR	Values in US$
Agricultural Crops	259	2.3
Livestock	279	2.5
Retail	8470	74.3
Services	4761	41.8
Hotel	1622	14.2
Total	15393	135.0

FIGURE 2. Real Income Multiplier of Tourist Spending (bar shows 95% CI)



This includes a multiplier of 1.73 directly from tourists, and an additional 0.05 from ticket revenue transfers to local user committee groups. The vertical line at the top of the bar gives a 95 percent confidence interval around the multiplier, and is obtained by running 500 iterations of the simulation. The line is short, indicating high confidence in the estimate. The full confidence interval lies well above 1.0, indicating that each rupee spent by nature tourists creates *significantly more than one additional* rupee of new income in communities around the park.

Figure 3 shows how much of the multiplier benefits poor versus non-poor households near the park. An additional rupee spent by tourists at the Chitwan National Park raises the real income of non-poor households by 1.60 rupees and that of poor households by 0.18 rupees. Households around Bharatpur benefit marginally more than households around Khairahani/Ratnanagar: 1.02 rupees per additional rupee of tourist spending, versus 0.76 rupees.

Despite the higher amount of the multiplier going to non-poor households, the economic contribution to local communities appears to benefit poor residents more than non-poor residents. Normalizing multiplier shares by these populations (i.e., dividing the share of the multiplier by the share of poor or non-poor population; see Figure 4) shows that 8 percent more of the multiplier share *per resident* goes to poor residents in both Bharatpur and Khairahani/Ratnanagar.

FIGURE 3. Share of Real Income Multiplier By Household Group

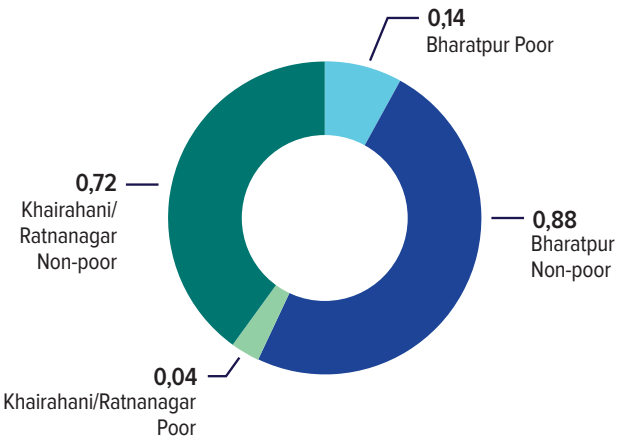
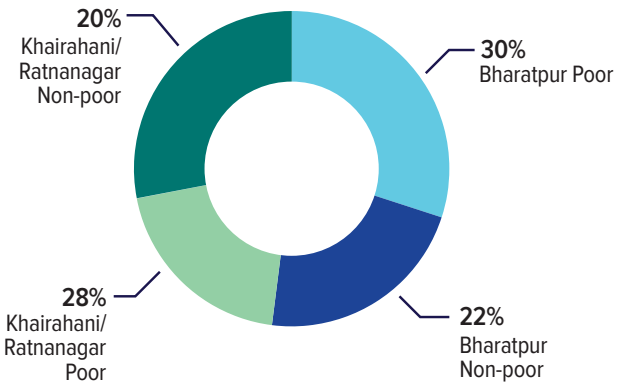


FIGURE 4. Distribution of Multiplier Across Poor and Non-poor Populations



5.2 Impacts of Nature-Based Tourism on the Local Economy

The impact of nature-based tourism on the local economy can be estimated by multiplying the number of tourists, domestic and international, who visit the national park by the income each additional tourist generates for the local economy. The total number of tourists who visit Chitwan annually is approximately 256,511 (211,888 international and 44,623 domestic). Given that each tourist generates additional income of US$169.3, the *total contribution of tourism to the local economy of Chitwan is estimated to be approximately US$43.4 million annually.* This is a significant amount, driven by the high number of tourists who visit Chitwan National Park. Lack of reliable data on the number of visits to user committee forests in the buffer zone means that this is a significant underestimate of the economic impact likely to be attributable to the park.

Despite high tourist-spending multipliers, the impact of nature-based tourism on the local economy around Chitwan National Park is low compared to the number of park visitors. This reflects the low-value, high-volume nature of tourism in Nepal. While the economy around Chitwan benefits from tourism, it is important to consider that this low-value, high-volume tourism generates a large environmental footprint which may degrade the very asset which draws tourists.

Dividing the economic impact of tourism by the sum of the government's wage and non-wage expenditures on the park provides an estimate of the economic returns from government spending (Table 12). Based on the LEWIE analysis, we estimate an *economic return of 7.6 rupees per 1 rupee of government spending on Chitwan National Park.* High rates of return result from large economic benefits relative to government spending on protected areas.

The impact of tourism on employment around the park includes employment by tourism operators and indirect employment impacts from tourism. These employment effects can be estimated by dividing the labor value-added by the average local wage.9 Based on this method, we estimate that *national park tourism generates 4,309 full-time equivalent jobs around Chitwan National Park.*10 To put this employment impact into perspective, this figure is equivalent to 2.8 percent of the working-age population around the park.

Governments can create additional benefits for local populations by hiring community members to work at parks as guards, guides, game wardens, etc. Local hiring would increase labor income in and around Chitwan National Park and generate multipliers through increased demand and spending. Hiring park guards will also strengthen wildlife management. The model estimates that an additional worker hired by the park generates an increase in local real income of NPR 775,050 (US$6,799). The cost to government of hiring an additional worker is NPR 278,343 (US$2,442),11 which is considerably less than the local income gains from hiring the additional worker (see Table 13 below).

TABLE 12. Estimated Impact of Tourism

A	B	C	D
Estimated Economic Impact of Tourism (US$)	Expenditure on Non-wages (park maintenance) (US$)*	Expenditure on Wages (US$)*	Rate of Return
43,427,312	2,384,201	3,340,157	7.6

*Expenditure based on 2018/19 fiscal year. Expenditures include costs to garrison army base.

9 The effect of labor value-added is estimated in the LEWIE model as the returns to labor, a productive asset, and represents the total wage income gains to the local economy. Dividing by wages allows us to estimate the extra employment generated through tourist spending.

10 For these calculations, we used average local tourism industry (lodge, restaurant and tour operator) daily wages of NPR 853 and NPR 792 per day, and average full-time equivalents of 211 and 198 days/year at Khairahani/Ratnanagar and Bharatpur, respectively. Average wages are slightly lower in the tourism industry than in other economic sectors, though differences are not statistically significant.

11 The average wage rate is derived from Chitwan National Park expenditure information. The estimated wage is averaged across employment types i.e., administration, research staff, park wardens, guards and all non-administrative staff functions.

This park-hiring impact can also be expressed in terms of an income multiplier. An additional rupee spent by the government on park wages creates a local economy real (inflation-adjusted) multiplier of 2.78 rupees. This park employment multiplier is higher than the tourist-spending multiplier, because all wages paid to locally hired park personnel go directly to local households, whereas a fraction of tourist spending does.

TABLE 13. Impact of One Hire by Chitwan National Park

	Local hiring increase *1 additional CNP employee, hired locally*	
Income effects	**Results in NPR**	**Results in US$**
Changes in local economy incomes		
Real (inflation-adjusted) Income	775,050	6,799
Changes in household incomes by location		
Khairahani/Ratnanagar Poor	38,477	338
Khairahani/Ratnanagar Non-poor	314,344	2,757
Bharatpur Poor	65,414	574
Bharatpur Non-poor	356,815	3,130
*Change in labor supply**	415,486	3,645

5.3 Impacts of Complementary Investments and Outside Shocks

Besides estimating the economic impacts of tourism in a protected area, the LEWIE model can also be used to simulate the local economic impacts of government interventions and economic shocks.

5.3.1 Local Economy-Wide Costs of Human-Wildlife Conflicts

Living close to a national park brings households into conflict with wildlife, often in the form of losses to crops and sometimes livestock. The analysis suggests that over 9 percent of crops (in value) are lost to wildlife, with 9.5 percent lost in Khairahani/Ratnanagar and 9.3 percent in Bharatpur municipality. Buffer zone user committee groups compensate farmers for a portion of these losses through cash transfers. Surveys from the six buffer zone user groups indicate payments totaling NPR 2,191,151 (US$18,782), which is a small proportion of the estimated losses.

The base LEWIE model uses actual harvests reported at the time of the survey. Thus, the 9 percent loss of crop value from human-wildlife conflict is already reflected in the base model, along with the compensation from user committees, which is captured in the transfer income section of the household survey. A human-wildlife conflict simulation which returns the lost crops to households while subtracting compensation payments was conducted to estimate the loss to the local economy (i.e., it estimates the counterfactual of no human-wildlife conflict, which when subtracted from base income gives the local-economy impact of the human-wildlife conflict that actually occurred). Crop losses can have major impacts on households suffering these losses. They also send negative ripple effects through local economies. Table 14 presents the impact of animal-inflicted crop losses on income around the park. Simulations indicate that these losses are substantial, at around NPR 333 million (US$2.92 million) annually. This far exceeds the direct losses to crops, estimated at NPR 165 million (US$ 1.45 million), indicating that indirect costs of wildlife incursions are considerable. Non-poor households bear a larger brunt of the loss, inasmuch as they have a larger capacity to grow crops.

TABLE 14. Estimated Losses from Human-Wildlife Conflict (step1)

	Human-wildlife Conflict 9.4% reduction in crop production	
Income effects	**Results in NPR**	**Results in US$**
Changes in local economy incomes		
Real (inflation-adjusted) Income	-333,074,456	-2,921,706
Changes in household incomes by location		
Khairahani/Ratnanagar Poor	-6,772,109	-59,404
Khairahani/Ratnanagar Non-poor	-148,100,558	-1,299,128
Bharatpur Poor	-15,703,504	-137,750
Bharatpur Non-poor	-162,498,285	-1,425,424
Change in Crop Production Value	-165,129,367	-1,448,503
*Change in labor supply**	-192,502,787	-1,688,621

5.3.2 Local Economy-Wide Impact of a 5 Percent Increase in Local Input Purchases by Businesses

Governments can increase local benefits from tourism by encouraging businesses to source more inputs locally. The LEWIE model was used to simulate the impact of a 5 percent increase in the amount of goods sourced locally by businesses. This was done by increasing local purchases by businesses (both services and retail) by 5 percent while holding outside purchases constant. The results are shown in Table 15.

A 5 percent increase in local purchases boosts local incomes by NPR 344 million (US$3.0 million), a sizeable increase. However, most benefits accrue to non-poor households. Non-poor households in Khairahani and Ratnanagar municipalities increase their incomes by NPR 174 million (US$1.53 million) and NPR 166 million (US$1.46 million), respectively. Poor households see substantially fewer benefits due to their lack of productive capacity to take advantage of such an intervention.

5.3.3 Local Economy-Wide Losses Due to COVID-19

Just as increases in tourism and tourist spending have positive multiplier effects, negative shocks produce negative income multipliers in local economies. The COVID-19 pandemic has resulted in substantial losses in tourism income for Chitwan businesses. The LEWIE model can simulate the impact of a one month loss of tourism on the local economy around Chitwan

TABLE 15. Impact of a 5 Percent Increase in Local Input Purchases by Businesses

	Local business input purchase 5% increase in the amount purchased locally	
Income effects	**Results in NPR**	**Results in US$**
Changes in local economy incomes		
Real (inflation-adjusted) Income	343,962,364	3,017,214
Changes in household incomes by location		
Khairahani/Ratnanagar Poor	750,483	6,583
Khairahani/Ratnanagar Non-poor	174,441,807	1,530,191
Bharatpur Poor	2,600,586	22,812
Bharatpur Non-poor	166,169,488	1,457,627

National Park. Tables 16 and 17 present the estimated impacts on income and production.

The simulations show a reduction in real income of NPR 427.7 million (US$3.76 million) *per month without tourists*. Non-poor households lose the most from this pandemic-induced shock, but poor households suffer significant losses too. Each month without tourism reduces the income of poor households by NPR 9.55 million (US$80,000) in Khairahani and Ratnanagar and NPR 33.3 million (US$290,000) in Bharatpur. Local retail revenues contract most, followed by services and other production and livestock activities. The loss to these local production sectors is considerably larger than the loss to local hotels.

All production activities contract, with total sales losses ranging from NPR 5.7 million (US$50,000) in the agricultural sector to NPR 187.6 million (US$1.65 million) in retail.

TABLE 16. Monthly Income Loss from No Tourism

Income loss per month of lost tourism	Values in Millions of NPR	Values in Millions of US$
Loss in Local Economy Incomes		
Real (inflation-adjusted) Income	427.7	3.76
95% CIs	[400.9,458.9]	[3.53, 4.04]
Loss in Household Real Incomes		
Khairahani/Ratnanagar Poor	9.55	0.08
Khairahani/Ratnanagar Non-Poor	167.6	1.47
Bharatpur Poor	33.3	0.29
Bharatpur Non-poor	206.0	1.81
Loss in User Committee Group Real Incomes	11.3	0.10

TABLE 17. Monthly Production Losses from No Tourism

Monthly Production Loss (in Monetary Value)	Values in Millions of NPR	Values in Millions of US$
Crops	5.7	0.05
Livestock	62	0.05
Retail	187.6	1.65
Services and Other Production	105.6	0.93
Hotel	36.1	0.32

6

Conclusions and Policy Recommendations

This study set out to make the case for greater investment of public resources in protected area management by estimating the local economic impacts – direct and indirect – of tourism in Nepal's biodiversity-rich Chitwan National Park, through the application of the LEWIE model. Its focus is on the local economy, defined as the collection of households and businesses in the buffer zone around the park and in the main nearby market town. This focus was chosen in order to understand the potential of protected areas to benefit local households, which often suffer negative effects of restrictions on natural resource use within protected areas, and human-wildlife conflict, and whose cooperation is critical to maintain the protected area by discouraging encroachment, poaching, and other threats. Economic development of the local economy is also a goal in and of itself, an additional reason to have a local focus.

One of the key findings of the study is that the local economic return per rupee of government spending on Chitwan National Park is about *7.6 to 1.* Public investment in protected areas not only helps to conserve biodiversity, it also helps to make these protected areas more attractive to tourists – for example, by securing wildlife through anti-poaching measures or providing well-maintained safari trails. When tourists visit protected areas, they not only spend money on park entry fees but also on hotels, meals, transportation, souvenirs and other tourism services. These expenditures directly benefit the tourism sector, but the benefits do not stop there. Tourism service providers hire labor and source goods and services from the local economy, triggering a chain of benefits for local businesses and households that are not directly connected with the tourism sector. It is the sum of these direct and indirect benefits that produce the high economic return per rupee of park investment by the government**. Investment in protected areas is therefore good for biodiversity conservation and for the development of the local economy.**

It is important to note, however, that this is a conservative estimate of the economic return per rupee of government spending on Chitwan National Park. Only benefits to the local economy have been estimated. Tourists who visit protected areas also spend money outside the local economy – for example, while traveling to the protected area – and businesses around the park source goods and services from outside the local economy, as well. Both these channels add to the economic return to Nepal per rupee of government spending. Furthermore, data limitations detailed in the report have meant that not all mechanisms through which tourist spending benefits the local economy have been considered. Local economic impacts of park management spending were not captured, and buffer zone visits have not been included in the estimates, due to lack of reliable data on their numbers. Also, as with other ex-post economic impact evaluations, we do not know with certainty what the local economy looked like before the national park existed or before there was tourism. As tourism expands, economies around protected areas evolve. Private and public investments stimulate and transform local economies in ways that the model is not able to capture. Because of this, it is possible that this study understates the full economic impact of nature-based tourism around Chitwan National Park. On the other hand, it is also important to consider that large-scale tourism may degrade the natural asset which draws visitors, reducing economic impacts in the long-run. Finally, this study is not representative of the economies around other protected areas in Nepal, nor the country's protected area system as a whole. Caution should be taken in extrapolating these results, and studies of additional park contexts may be necessary to produce park-specific recommendations.

Government revenues from tourism in the national park – gathered through park visitor fees, concessions, etc. – are significantly less than the expenditure on park protection and maintenance, which also includes expenses incurred by the army. This may give rise to the perception that biodiversity conservation is a financial burden, and not a source of revenue for Nepal. However, as noted above, the broader impacts of the park on the local economy are more than seven times greater than the government's expenditures on the park, making the park a valuable development asset.

Expenditures by tourists visiting Chitwan NP generate significant income multipliers for households in the local economy, benefiting households directly involved in the tourism sector, those who do not have contact with tourists, and both poor and non-poor households. The study estimates that *an additional rupee spent by visitors at Chitwan National Park raises the total income of households around the park by 1.78 rupees.* Of this, 1.60 rupees go to non-poor households and 0.18 rupees to poor households.

The large indirect impacts of Chitwan tourism on local incomes suggest that studies which only consider tourism expenditures will underestimate total impacts on the local economy, while over-emphasizing leakages from tourism activities outside the local economy.

Tourism generates a significant number of jobs, directly and indirectly. The study estimates that *national park tourism generates 4,309 full-time equivalent jobs around Chitwan National Park*. To put this employment impact into perspective, it is equivalent to 2.8 percent of the working-age population around the park.

The study also estimates the effects of human-wildlife conflict on the local economy. Crop losses from wildlife incursions can result in large losses in real income. The household surveys revealed that animal incursions into farms around Chitwan National Park reduce crop output by 9 percent. The direct and indirect impacts of these losses are valued at approximately NPR 333 million (US$2.9 million) to the local economy annually. Non-poor households bear a larger brunt of this loss, as they have a larger capacity to grow crops. Although significant, particularly to those who lose crops, total income losses from wildlife incursions are considerably less than income gains from tourism in Chitwan National Park. *The value of tourism to the local economy of Chitwan is estimated to be US$43.4 million annually.* Moreover, since the base run of the LEWIE model includes damages from human-wildlife conflict, the impact of tourism is net of these losses. Households that incur losses from animal invasions may or may not also benefit from tourism in the protected area, and therefore may need to be compensated for these losses.

In summary, the report finds that Nepal's Chitwan National Park, an important tourist attraction, not only protects biodiversity but augments the local economy, providing income and jobs for poor and non-poor households. Tourism to the park benefits those directly involved in the tourism sector, and those who are not.

With over 23 percent of its land area under some form of protection, there is great potential for protected areas in Nepal to contribute to development goals while maintaining the country's rich biodiversity asset base. Protected area management challenges need to be addressed, tourism offerings promoted and diversified, and benefits shared fairly with local communities. Protecting natural assets, growing and diversifying the tourism sector, and sharing benefits with local communities are the three ingredients needed to meet the twin goals of development and biodiversity conservation.

Protect Natural Assets

To promote biodiversity conservation and secure the natural assets which attract visitors, it is critical that protected areas be conserved, enhanced to reverse degradation, and generally well-managed. This requires addressing underlying factors contributing to the poor performance of Nepal's protected areas. The following actions are identified:

Increase public investment in protected area management: As indicated by this study, funding for protected areas results in high returns on investment. Public funding for park management is especially important, as well managed parks attract tourists, strengthening the tourism sector and providing livelihoods for local communities.

Build capacity of protected area managers: It is important that protected area managers are trained and have the experience to be effective. To manage commercial and business operations, managers should understand both protected area laws and policies, and the business needs of tourism operators, and must manage commercial entities in accordance with protected area needs. While these needs may vary depending on the protected area, education, experience, and training in certain fields will be helpful to support a commercial services program regardless of location, including: understanding the legal framework for operators; developing contracts, authorizing instruments and solicit bids if applicable, monitoring and evaluating operators; data collection and analysis; business acumen; negotiation skills, and asset management training if government facilities are used by operators. By developing training and on-the-job education in a commercial services program, managers can develop these skills in their staff.

Manage the environmental footprint of tourism: While high tourist numbers generate a high impact on the local economy, estimated at US$43.4 million at Chitwan, these numbers may increase the environmental footprint of the tourism sector and degrade natural assets (see Box 4; World Bank, 2021,for example). Thus, the net benefit to the economy may be lower than the net increase in incomes brought about by tourism. Conversely, the costs of mitigating the negative impacts of tourism (e.g., solid waste and wastewater management) are higher for

BOX 4. Solid Waste Management in Nepal's Mountain Areas

Tourism in Nepal's mountainous areas is crucial to local livelihoods, yet the waste generated by tourists threatens the natural areas that draw visitors from around the world. Solid waste management systems in Nepal are largely underdeveloped, particularly in rural areas, and mountainous landscapes add a further challenge to processing waste. Collecting, transporting, treating, and disposing of waste requires system-wide investments.

A recent World Bank study, *Nepal: Sustainable Solid Waste Management in Mountain Areas* (World Bank, 2021), examines solid waste management and stakeholder mindsets in the Annapurna Conservation Area. The study recommends a phased approach to solid waste management which strengthens local institutions, improves services and capacity, provides innovative waste collection in remote and rugged areas, and boosts the sustainability of waste management practices. Much of this strategy relies on local community participation and leadership.

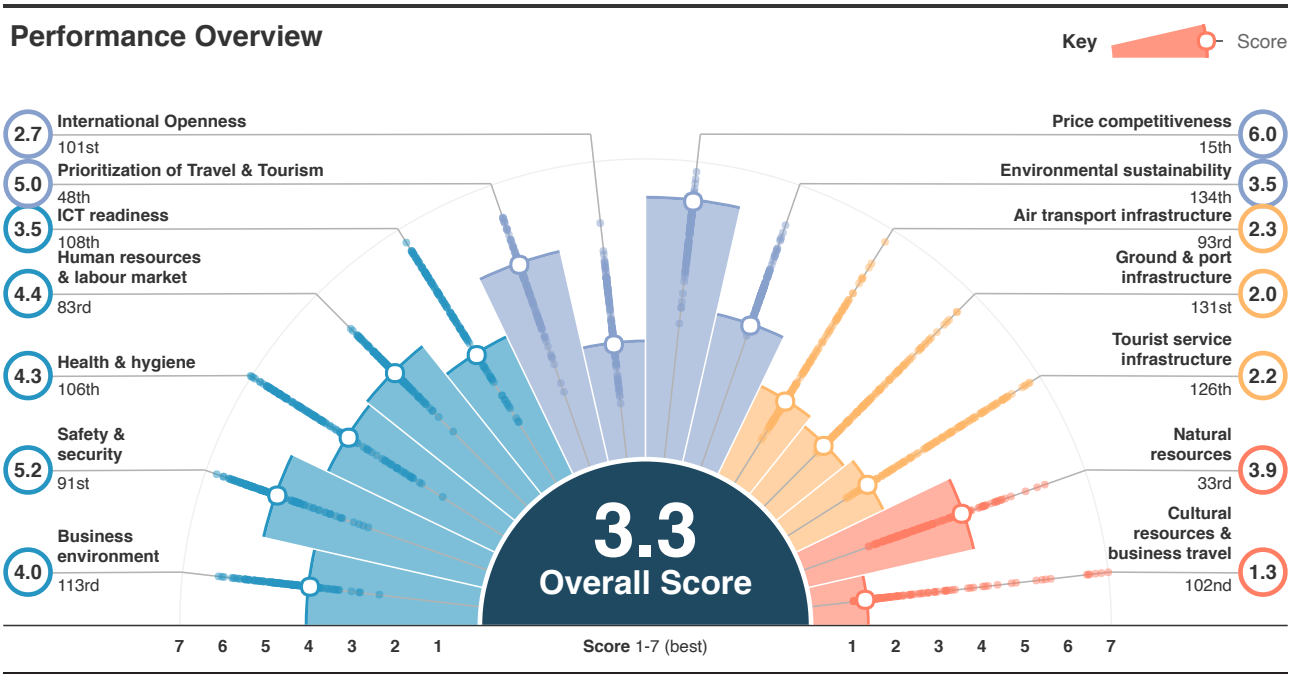
large numbers of low-spending visitors than for low numbers of high-spending tourists.

Undertake regular Visitor Spending Effects Assessments at the national level: This study presented a methodology to assess the economic impacts of protected area tourism on the local economy of a national park in Nepal. To argue for public resources, and to support planning and program design, for example, to identify where tourism services can be improved, it is important that such assessments are conducted by the government regularly, and at the national level. This will require systematic collection of data on tourists, tourism businesses, local economies, and park management. Therefore, a complementary recommendation is to: *implement regular visitor surveys for monitoring and evaluation*. A key challenge for this study was the lack of tourist information, and surveys are needed to understand the impacts of tourism and how they may change over time. Information on the number of visitors to each park, and their spending habits, is important for policy planning. Visitor surveys would ideally be conducted on a rolling basis to capture seasonal trends in tourists' behavior and be administered at the end of a visitor's trip, such as in the waiting lounge of outbound flights from Kathmandu.

Grow and Diversify the Tourism Sector

Nepal has attracted growing numbers of tourists to its protected areas; however, the country lags behind some of its neighbors in terms of numbers of visitors. Based on the World Economic Forum (WEF) 2019 Travel and Tourism

FIGURE 5. Nepal Travel and Tourism Competitiveness Index Profile



Source: World Economic Forum (WEF, 2019)

Competitiveness ranking, Nepal scored 3.3 out of a maximum of 7 points, and ranked low overall: 102 out of 140 countries (WEF, 2019); see Figure 5 below. Categories in which Nepal scored poorly, and significantly below the global average include *infrastructure* (air and ground transport and tourist service) and *international openness*. On the other hand, Nepal scored high for its natural resource assets: 33rd out of 140 countries.

Growing and diversifying tourism beyond the four parks that tourists currently visit will require policies, programs, and investments that go beyond protected areas. It will also be important to *assess Nepal's protected areas and prioritize sites with potential to be developed in order to diversify Nepal's tourism offerings.* A recent World Bank publication provides guidance to identify opportunities for the private sector and to select parks for development on this basis (see Box 5; World Bank, 2020).

BOX 5. Selection of Protected Area Destinations for Phased Development

Nepal boasts several destinations with potential to attract high-end to mid-range tourists to areas other than current popular destinations. A tourism destination is a physical space with *tourism* attractions and resources in which a visitor spends *at least one night. It has physical and administrative boundaries* defining its management, and images and perceptions defining its market competitiveness. According to this definition, and in consultation with stakeholders, the WBG has identified twelve destinations from the seven newly-formed administrative provinces (see Map 4). Smaller destinations have been regrouped into a single package with potential to link them as an integrated circuit and/or to brand them as a unified destination.

MAP 4. Twelve Potential Tourism Destinations in Nepal

These twelve destinations can be ranked by strong private sector development impacts. Opportunities for private sector investment are based on the desirability for growth in key sectors and the feasibility of overcoming constraints. Desirability and feasibility equate roughly to social returns (desirability) versus risk-adjusted private returns (feasibility) of investments, respectively, in each sector. A site needs to score highly on both criteria for the private sector to contribute meaningfully to development objectives—even if social returns are high, the private sector will not participate without attractive profit margins. By leveraging the private sector and optimizing the use of scarce public resources, financing for development and growth can be maximized.

Based on desirability/feasibility criteria, provinces 4 and 5 offer the best opportunities for private sector participation in tourism development. These provinces can improve and develop destinations which will diversify tourism toward high-end and mid-range markets. Mid-West (province 6), and Langtang and Gaurishankar (province 3) could also develop priority destinations. Far West Nepal (province 7) and Eastern Nepal destinations (province 1) are not considered top priorities considering access limitations for mid-range and high-end segments. Finally, Kathmandu valley (province 3), Everest (province 1), and Chitwan (province 3) are relatively mature markets with little diversification potential at the country level.

Source: Sustainable Tourism Development in Nepal (World Bank 2020)

Another intervention to promote tourism in protected areas relates to *concessions policies*. The enabling legislation for biodiversity conservation in Nepal is the National Parks and Wildlife Conservation Act, 1973. The Act is strong, particularly regarding natural and cultural resource protection, but does not provide for tourism development in the park, visitor amenities, or the kinds of concessions and activities that will generate public enjoyment of and support for the park. This is critical for economic development in the park and surrounding communities. Furthermore, the Act only provides very general terms for the operation and regulation of tourism concessions, and does not, for example, provide for how these services are to be contracted.

In 2018, the government drafted regulations and guidance for establishing commercial activities: Procedures Relating to Operation and Regulation of Tourism Services in Protected Areas ("Guidance"). The Guidance remains in draft and has not been finalized. Also, the Guidance falls short of providing clear steps for the solicitation, award and management of commercial services/concessions in parks. The Guidance does not contain any of the following provisions that are generally accepted as best practices by countries with high performing concession programs:

- Contract term limit provisions – the Guidance should stipulate the maximum length for which a contract may be awarded in any given circumstance.
- Methodology to determine appropriate activities in a particular park – laws, regulations or guidance must clearly define how a park manager will determine whether or not a particular activity is appropriate for the park area. Though the Act does require parks to have General Management Plans (GMPs) which should include appropriate commercial activities, many parks do not have GMPs.
- Solicitation, selection, evaluation & award procedures – the draft Guidance does not describe in detail how the contracting process should be conducted. Without these provisions, neither the public nor potential concessioners can understand the process, and this may lead to a lack of transparency and/or perceptions of unfairness.
- Standard concession contract provisions – concessions contracts need to be standardized, and published, in the interests of transparency, and so that concessioners understand them.
- Protection of concessioner investment – There are no laws or regulations to stipulate the legal status of concessioner investments upon contract termination, or when contracts come to the end of their natural term. Investments are typically amortized over the term of the contract, or the next concessioner may be required to assume any debt.
- Franchise fees – these provisions are absent from the current draft and are necessary to explain and proscribe how fees to the government will be determined. In many countries, franchise fees are established using an Internal Rate of Return or Return on Investment process.
- Community award of concession – if the Government desires to award contracts to local community groups or peoples, then these provisions and processes need to be stated, and should be included in the draft.
- Reasonableness of rates to visitors – current guidance on rates is very prescriptive. Best practice recommends that the Guidance provide the methodology for rate setting – but not the rates themselves. Rates should vary based on market forces and the financial requirements of the investment.
- Annual and periodic reviews – Guidance fails to describe how concessioners will be reviewed. Guidance should require at least one annual review based on the requirements and standards in the contract.
- Dispute Resolution – Guidance needs to clearly state how the government and the concessioner will resolve disputes.

The regulatory components of protected area concession regulations and policy in Nepal can be strengthened by finalizing the draft "Procedures Relating to Operation and Regulation of Tourism Services in Protected Areas" and ensuring that the document contains the necessary provisions to plan for, award, and manage concession contracts:

1. Clearly state and define laws used to authorize and procure tourism concession contracts.
2. Consider basing guidance and policy components on international best practices in tourism concession management.
3. Make it a high priority within the DNPWC to finalize tourism concession guidance.
4. Provide broad level guidance regarding the types of activities that are appropriate in parks and specific guidance for how parks

may determine what activities are appropriate for their particular protected area/location.

5. Develop standardized concession contract provisions, contract term limits and types of contracts to be offered.
6. Define the process DNPWC will use to solicit, select and award concession contracts.
    a. Develop a detailed description of the feasibility process;
    b. Determine the process for developing the request for proposals (prospectus, tender, etc.) and selection procedures;
    c. Develop contract award processes.
7. Obtain public input and comment on the regulatory requirements.
8. Ensure transparency by publishing all regulations and guidance.

Sharing Benefits with Local Communities

As noted, development of local communities around protected areas is a goal in and of itself. Sharing the benefits from tourism to protected areas with local communities furthers this goal. Moreover, when local communities benefit from tourism to protected areas, they are incentivized to support conservation efforts and to discourage encroachment, poaching, and other activities that lead to the degradation of protected areas.

While the income multiplier for local households from visitor spending at Chitwan is significant, there are opportunities for government policies and programs to further enhance impacts of tourism to protected areas on the local economy.

Mitigate and compensate for human-wildlife conflict impacts: The government can strengthen its existing compensation policy for wildlife damages. The policy was introduced in 2009 and prioritizes compensation for human death and injury, followed by livestock loss, crop destruction, stored grain loss, and housing damage. This compensation scheme is seen as cumbersome and inconsistent with other government compensation for life loss, e.g., in cases of riots or traffic casualties. Beyond compensation, species-specific conservation actions are needed to reduce human-wildlife conflict. Strategies to mitigate losses from human-wildlife conflict include electric fencing to limit wildlife movement, use of predator-proof livestock corrals, wildlife monitoring from watchtowers, removal of threatening individual animals to uninhabited areas, and planting crops that wildlife species find unpalatable as a deterrent (Acharya et al., 2016; WWF, n.d.)therefore, may undermine public support for conservation. Although Nepal, with rich biodiversity, is doing well in its conservation efforts, human-wildlife conflicts have been a major challenge in recent years. The lack of detailed information on the spatial and temporal patterns of human-wildlife conflicts at the national level impedes the development of effective conflict mitigation plans. We examined patterns of human injury and death caused by large mammals using data from attack events and their spatiotemporal dimensions collected from a national survey of data available in Nepal over five years (2010–2014. Projects like WWF Nepal's Terai Arc Landscape Project take the idea of deterrent crops one step further: they work with communities to plant mentha as a crop fence against wildlife. Animals are deterred by the crop, and communities can gain income from the use of mentha for menthol oil production. Enhancing public awareness and protecting livelihoods by compensating damages also reduces human-wildlife conflict while allowing for conservation (Pant et al., 2016)through household questionnaire surveys, key informant interviews, site observations, and analysis of the reported cases of damage during January 2008–December 2012. During this 5-year period 290 incidents of damage by elephants were reported, with a high concentration of incidents in a few locations. Property damage (53%.

Strengthen linkages between the tourism value chain and local economy: The government can strengthen linkages across the tourism value chain and improve benefit-sharing mechanisms to enhance existing multipliers. The methodology used in this study simulates other methods that the government could adopt to improve benefits reaching communities.

» Supporting local producers and households to provide more of the goods and services needed by tourism businesses. Most hotels (74 percent) purchase inputs locally. However, the study finds that an additional 5 percent increase in local purchases would increase local incomes by US$3.0 million (NPR 344 million). Most of these benefits accrue to non-poor households. Poor households see substantially less benefit due to their lack of productive capacity to take advantage of such an intervention.

BOX 6. A Green Recovery Initiative for Nepal

On September 23, 2021, the Government of Nepal and development partners endorsed the landmark 'Kathmandu Declaration to develop a strategic action plan for Nepal towards Green, Resilient, and Inclusive Development (GRID).

The Declaration was endorsed by the Ministry of Finance on behalf of Government of Nepal, Asian Development Bank, Australia, European Union, Finland, France, Germany, International Monetary Fund, Norway, Republic of Korea, Switzerland, United Kingdom, United Nations, United States, and the World Bank at a high-level roundtable event *Nepal's Transition to Green, Resilient, and Inclusive Development (GRID) for Sustainable Recovery, Growth, and Jobs*. Under the Kathmandu Declaration, Nepal's development partners have identified up to $4.2 billion in potential future support, in addition to the $3.2 billion in previously committed resources to support GRID.

The GRID Strategic Action Plan will coordinate international and domestic financing for priority investments in Nepal's recovery from the crisis caused by the COVID-19 pandemic. The government and development partners intend to scale up support for such areas as sustainable tourism, renewable energy, cleaner transport and resilient roads, integrated solid waste management, sustainable forest management, watershed protection and water supply, biodiversity conservation, adaptive social protection, climate-smart agriculture, and sustainable cities.

» Additionally, training women could support increased labor productivity and inclusivity. In Nepal, women represent 20 percent of the tourism labor force compared to the global average of 61 percent (IFC, 2017). Moreover, they generally perform low-skilled, menial tasks. Providing formal training to women to participate in community-level committees and to attain management positions in the tourism industry will help them to earn higher incomes.

Finally, as shown in the previous section, the COVID-19 pandemic has resulted in substantial losses in tourism incomes at Chitwan National Park. The study finds that a complete loss of tourism to Chitwan National Park reduces household real income by NPR 427.7million (US$3.76 million*) per month*. Each month without tourism reduces the income of poor households by NPR 9.55 million (US$80,000) in Khairahani and Ratnanagar and NPR 33.3 million (US$290,000) in Bharatpur. All production activities lose, with sales losses ranging from NPR 5.7 million (US$50,000) in agriculture to NPR 187.6 million (US$1.65 million) in retail. As the pandemic continues, losses will continue to accrue, and the future of tourism-dependent livelihoods remains uncertain.

As the government pursues economic recovery, there is a unique opportunity for the country to 'build back greener and better' (see Box 6). This entails continuing efforts on wildlife, forest and PA management to protect natural assets.

Creating jobs through labor-intensive civil works to establish green infrastructure around national parks and provide alternative livelihoods for people who have lost their jobs or businesses would stimulate economic activity while improving environmental outcomes – a green recovery.

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ANNEX 1
Summary of Data Collection Methodology

Households and local businesses surveys

Sites for the primary survey were located in the Khairahani, Ratnanagar and Bharatpur municipalities. Four to five villages were randomly selected from each municipality from a master list of roughly 20 villages per municipality. Roughly 50 households were interviewed from each randomly selected village, resulting in a final sample size of 596 households across 12 villages.

Three supplemental questionnaires were administered independently: (i) a survey of independent businesses operating in the nearby main market (including Bharatpur; the questionnaire was identical to the business module of the household survey questionnaire); (ii) a user committee survey of the six user committees in the two municipalities; and (iii) a survey of hotel owners in the Khairahani, Ratnanagar and Bharatpur municipalities.

Access, permission and enumeration of villages were addressed over three visits. In the initial visit, members of the team spoke with village leaders, and four members of the community were hired as guides. During the first visit, team members carefully explained the purpose of the study and sought permission for the survey. Another reason for this visit was to list households in the community. Upon receiving permission from village leaders to conduct the surveys and list households, a random selection method was used to identify households for the survey. This list was returned to village leaders and guides on the second visit, with the 50–60 randomly selected households marked (based on number of households in the village). The leaders and guides were asked to explain the following to the participating households: 1) the purpose of the study and rough length of the survey; 2) that participation in the study was voluntary; 3) that not all members of the household needed to be present; and 4) that information given by participants would be confidential. In cases where master lists of households were available, the first and second visits were combined into a single visit whenever possible. Once households consented to the interview, they were confirmed on the list. If they declined to be interviewed, a nearest neighbor household was contacted as a replacement. On the third and final visit, the guides took the enumerators to the designated households to conduct the survey. One village (or village cluster) was visited daily, allowing field supervisors to be available when questions arose. Overall, an average of 50 households were sampled each day from each village/village cluster, giving a sample of 338 households in Khairahani and Ratnanagar and 259 households in Bharatpur.

Table A1.1 gives the number of sampled households and estimated populations from each of the two study sites.

During the enumeration process, additional business-specific surveys were conducted in villages and nearby market towns. Lacking access to a master list of businesses, an every-other-business approach was adopted, a simple procedure, given that businesses typically were lined up along the main street. As with the household surveys, owner-operator participation in the business surveys was voluntary.

TABLE A1.1. Sample Sizes and Estimated Populations

	Khairahani/ Ratnanagar	Bharatpur
• Population	68,854	83,476
• Sampled Households	337	259

User committee surveys were administered by a local guide who was hired for the duration of the study. The survey instrument for user committees was developed with assistance from the guide, who was subsequently trained on the questionnaire prior to data collection.

Tourist Survey

Tourists staying at hotels in the Chitwan region were surveyed by National Trust for Nature Conservation (NTNC) staff after the primary fieldwork had concluded. The survey was designed to capture information on how much money tourists spent during their stay, and where they spent it, as an input for the LEWIE model. Sixty-seven tourist groups were surveyed.

Tourism Businesses Survey

Key tourism nodes are the lodges inside and outside national parks which provide visitors with accommodation, meals, transport, and activities such as elephant riding, visiting the crocodile breeding center, cycling, and other local activities.

Data on lodge incomes and expenditures are proprietary, and difficult to obtain. For this study, hotel surveys were administered by trained NTNC staff. All hotels near Chitwan National Park were approached for the survey.

ANNEX 2
Summary Statistics

Tourists and Tourism Businesses

Table A2.1 summarizes visitor activities at Chitwan. The most popular activity was jeep safaris, followed by elephant safaris, Tharu dance events and other cultural programs. Smaller numbers of visitors took canoe trips, went bird watching, or took walking safaris.

Tourists were asked whether they would revisit the park and recommend Chitwan to their friends and family. Ninety-four percent answered that they would revisit the park, and 95% stated that they would recommend it. Forty-two percent rated the quality of facilities as average, 35 percent as excellent, and 16 percent as above average.

Animal sightings vary depending upon the time of year, the time of day, and chance. Most visitors (96 percent) spotted rhino at Chitwan (Table A2.2); 45 percent sighted gharial, approximately a quarter saw elephant, and smaller percentages spotted the more elusive sloth bear, tiger, and leopard.

Households

Table A2.3 reports the distribution of survey respondents' ethnicities (self-identified in the survey). Diverse ethnicities exist within Chitwan; Khairahani and Ratnanagar have a higher percentage of Tharu (30.6 percent) and Brahman (19.0 percent) residents than Bharatpur (9.7 percent and 13.5 percent, respectively).

Table A2.4 presents the distribution of wage work types. Overall, the distribution of employment types is similar at the two sites, though a slightly higher percentage of workers in Bharatpur work in agriculture, construction, and services, including hotels, restaurants, and tour operation.

Most workers employed in Chitwan work full-time, with over half employed for more than 150 days in 2019 (Table A2.5). Very few workers have a second job. Annual wages for residents in Khairahani/Ratnanagar and Bharatpur, respectively, are NPR 168,732 (US$1,400) and NPR 133,533 (US$996), corresponding to an average daily wage of NPR 853 (US$7.5) and NPR 791 (US$6.9). At both sites, workers in tourism-related industries earn slightly below the average wage. The difference between average and tourism-sector wages is statistically significant in Bharatpur but not in Khairahani/Ratnanagar.

Crop production is relatively small-scale and carried out largely on family farms. Local labor is hired to plant and harvest. Figure A2.1 shows

TABLE A2.1. Activities of Chitwan Visitors

Activity	% Participating while at Chitwan
Jeep safari	72%
Elephant safari	45%
Tharu dance	39%
Other cultural programs	32%
Canoeing	19%
Bird watching	16%
Walking safari	13%
Temple excursion	4%

TABLE A2.2. Animal Sightings at Chitwan

Animal	% Sighting
Rhino	96%
Tiger	6%
Leopard	1%
Elephant	27%
Gharial	45%
Sloth bear	6%

TABLE A2.3. Distribution of Ethnicities in the Household Sample

Ethnicity	Khairahani / Ratnanagar	Bharatpur
Tharu	30.6%	9.7%
Bot	3.0%	9.7%
Majhi	0.0%	1.5%
Tamang	0.6%	3.5%
Darai	6.5%	1.5%
Brahman	19.0%	13.5%
Magar	0.9%	5.4%
Kumal	0.0%	13.5%
Pariyar	0.3%	3.1%
Mahato	1.8%	3.5%
Other	37.4%	35.1%

TABLE A2.4. Distribution of Employment Type

	Khairahani / Ratnanagar	Bharatpur
Domestic	0.08	0.07
Agriculture	0.13	0.20
Store/Factory/Food Processing	0.09	0.11
Construction	0.16	0.18
Beauty/Transport	0.11	0.11
School	0.12	0.03
Government	0.04	0.04
Private Sector Office Work	0.08	0.08
Hotels/Restaurants/Tour Operators	0.13	0.15
Other Services	0.06	0.03

TABLE A2.5. Wage Income and Employment

Survey Site		Days Worked	Share Working > 150 Days	Annual Wage Income (NPR)	Average Wage Per Day (NPR)	Share with Second Job	Share Working in Hotels/ Restaurants/ Tour Operation	Hotel/ Restaurant/ Tour Operator Wage
Khaira/ Ratn	Mean	211.1	0.70	168,732	853.0	0.021	0.14	811.0
N = 503	SD	(108.7)	(0.46)	(142,625)	(990.5)	(0.14)	(0.35)	(482.4)
Bharatpur	Mean	198.4	0.59	133,535	791.6	0.016	0.13	579.64
N = 473	SD	(113.4)	(0.49)	(105,063)	(976.4)	(0.13)	(0.34)	(293.8)

FIGURE A2.1. Crops Grown by Plot

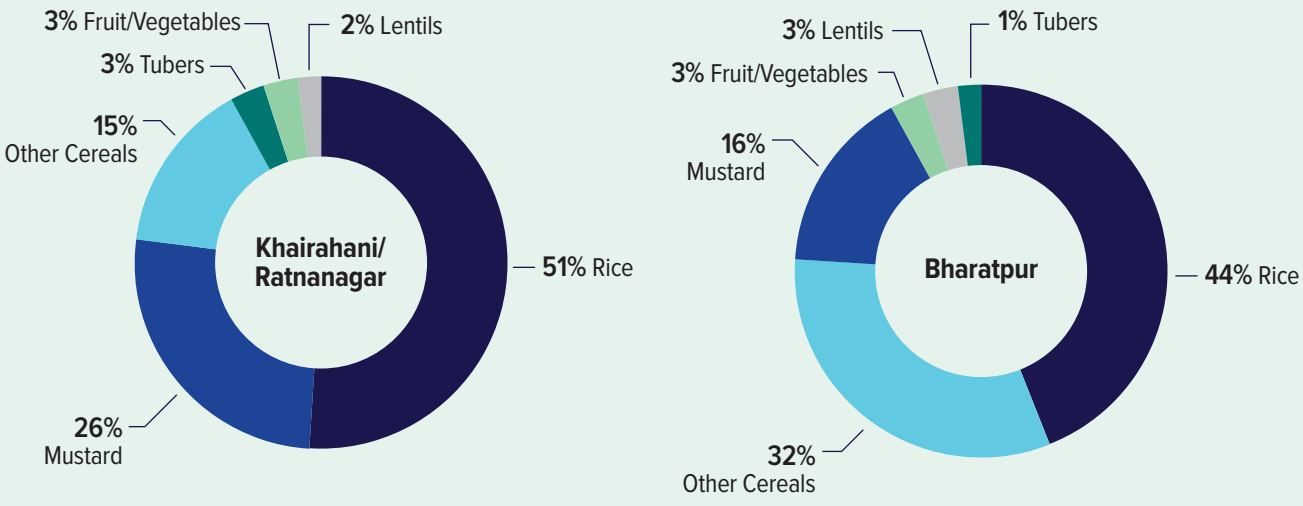


TABLE A2.6. Crop Acreage, Production and Input Use (Plot Level)

Survey Site		Average Plot Size (Square Meters)	Average Harvest Value	Family Labor days	% Hired Labor Pesticides	Inputs Fertilizer	
Khaira/Ratn	Mean	3,743	37,398	81.2	0.94	0.78	0.90
N = 529	SD	(7,858.6)	(43,500)	(84.8)	(0.25)	(0.41)	(0.31)
Bharatpur	Mean	3,195	32,138	64.5	0.95	0.43	0.82
N = 320	SD	(3,937.1)	(94,497)	(47.8)	(0.22)	(0.50)	(0.38)

TABLE A2.7. Crop Use and Sales

		Share Selling	Share of Crop Sold§	Lodge Sales§	Share Consumed	Spoilage	Share to Gifts	Share Stored	Wildlife Damage*
Khaira/Ratn	Mean	0.68	0.30	0.03	0.45	0.05	0.01	0.17	9.50%
N=376	SD	(0.47)	(0.35)	(0.17)	(0.36)	(0.12)	(0.05)	(0.26)	(0.2)
Bharatpur	Mean	0.48	0.18	0.02	0.57	0.04	0.01	0.15	9.30%
N=86	SD	(0.50)	(0.31)	(0.13)	(0.38)	(0.13)	(0.06)	(0.26)	(0.19)

Source: World Bank Survey
§ Share sold and Share selling to lodges conditional on sales
* Percentage loss in harvest attributable to wildlife

the share of household plots cultivated for each crop in the year prior to the survey. The most commonly grown crop at both sites is rice: 52 percent of household plots in Khairahani/Ratnanagar and 48 percent in Bharatpur. Other common crops include mustard in Khairahani/Ratnanagar and other cereals (maize, millet and wheat) in Bharatpur. Rice and cereals are produced mainly for home consumption, whereas mustard is an important cash crop.

Table A2.6 reports crop acreage, production, labor, and other input demands at the plot level. The average plot size is slightly larger in Khairahani/Ratnanagar (0.92 acres, 3,743 m2) than Bharatpur (0.79 acres, 3,195 m2). Families spend 81.2 and 65.4 person-days per year tending to their crops in Khairahani/Ratnanagar and Bharatpur, respectively. Use of pesticides and fertilizers is fairly common: Khairahani/Ratnanagar households apply pesticides to 78 percent of plots and fertilizer to 90 percent of plots. In Bharatpur, pesticide and fertilizer use is lower, at 43 percent and 82 percent of plots, respectively.

Table A2.7 reports sales and other uses of crops at the two sites. Sixty-eight percent of households in Khairahani/Ratnanagar and 48 percent in Bharatpur sold a portion of their crops during the 12 months prior to the survey. Farmers selling their crops sold around 30 percent of the value of their harvests in Khairahani/Ratnanagar and 18 percent in Bharatpur. Only a small percentage of households sold their produce directly to hotels or resorts. Households reported losing around 5 percent of their harvest values to spoilage, and having approximately 15 percent in storage at the time of the survey. The survey asked households to estimate how much, if any, of their crop production was lost to damage from wildlife (mostly boars, elephants, and rhinos) in the 12 months preceding the survey. On average, households reported losing 9.3–9.5 percent of their production to wildlife encroachment.

Livestock

Figure A2.2 shows species shares for livestock at the two sites. Livestock holdings differ substantially between the sites. Livestock in Khairahani/Ratnanagar consists mainly of cattle (buffalo) and pigs, which together constitute 78 percent of livestock holdings. In Bharatpur, large livestock are less important, but chickens, ducks and other birds account for 52 percent of livestock.

FIGURE A2.2. Composition of Total Value of Livestock Holdings

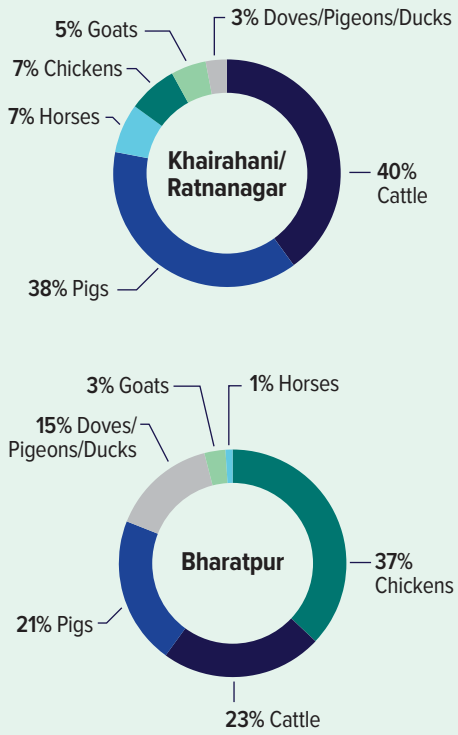


Table A2.8 summarizes the value, uses, and input expenditures on livestock in the two municipalities. While many residents in Khairahani/Ratnanagar own buffalo and other large livestock, the average size, and hence value of their herds is limited. Livestock owners in Bharatpur, on average, have close to three times the herd values of farmers from Khairahani/Ratnanagar. Annual expenditures on veterinary care and feed are much higher in Bharatpur (NPR 27,000, or US$236) than Khairahani/Ratnanagar (NPR 5,800, or US$51). Around a quarter of households sold livestock in the 12 months prior to the survey. Among Khairahani/Ratnanagar residents selling livestock, 13 percent sold to local lodges/hotels, compared with 30 percent of households in Bharatpur. Most livestock trading happens locally: percentages of livestock purchased from markets or other households inside the municipalities are 88 percent and 90 percent for Khairahani/Ratnanagar and Bharatpur, respectively.

Local Businesses

On average, retail businesses are open around 11 months of the year and services close to year-round (Table A2.9). Services in the sample have higher average asset values than retail establishments (NPR 3,256,000, or US$ 28,500, compared with NPR 1,618,000, or US$ 14,200). However, monthly revenues are higher for retail: NPR 299,404 (US$ 2,626), compared with NPR 196,986 (US$1,728) in services. Thirty-eight percent of retail businesses and 48 percent of services hire labor. On average, rent and transport costs are similar for the two business types. Average monthly profits are higher for retail: NPR 46,000 (US$404), versus NPR 38,000 (US$333) for services.

Businesses, like households, can stimulate local incomes through their expenditures. Table A2.10 summarizes input purchases by businesses at the two sites. Both retail and service operations purchase crops, and over 95 percent of these purchases are local—that is, within the same municipality. Retail businesses that sell livestock and aquacultural products (e.g., butchers and supermarkets) buy 83 percent of their livestock and 89 percent of their aquacultural products from producers inside Chitwan; while restaurants source 100 percent and 90 percent of these products locally. Much of the merchandise sold by retail establishments originates outside Chitwan, but a large share of services are non-tradables procured locally. Overall, Chitwan businesses purchase a significant amount of their inputs locally, and their expenditures create income-growth linkages with other production activities in the region.

TABLE A2.8. Livestock and Inputs

Survey Site		Total Value	Share Consumed	Sales		Purchase		Input Expenditure	
				Share Selling	Local Share§	Share Buying	Local Share§	Pen/Cage Maintenance	Vet & Feed
Khaira/ Ratn	Mean	29,005	0.06	0.28	0.13	0.10	0.88	66.20	5,759.0
	SD	(122,515)	(0.12)	(0.45)	(0.39)	(0.30)	(0.33)	(198.4)	(51,272)
Bharatpur	Mean	88,066	0.04	0.21	0.3	0.07	0.9	26.24	27,306.1
	SD	(197,383)	(0.12)	(0.41)	(0.60)	(0.25)	(0.31)	(99.7)	(178,276.9)

Source: World Bank Survey

§ Share of sales/purchases within the municipality

TABLE A2.9. Business Operations

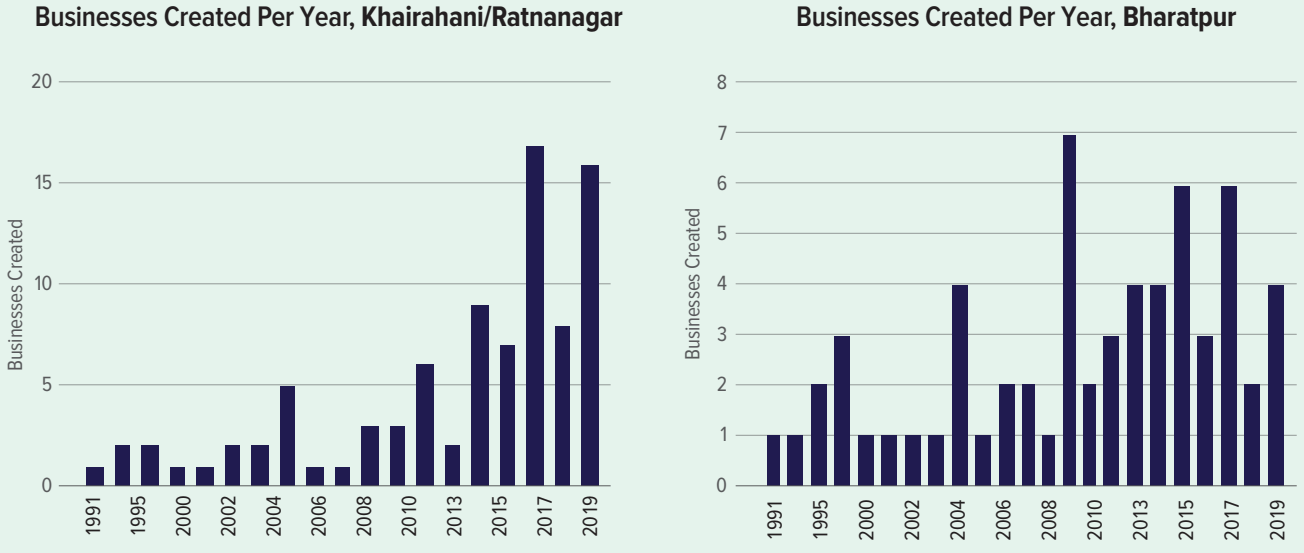
Sector		Months Operated	Labor		Monthly Rent	Monthly Transport Cost	Asset Value	Monthly Revenue	Monthly Profit
			% Hiring	# Family Members					
Retail	Mean	10.99	38.2%	1.62	10,899	7,589	1,617,857	299,404	45,563
	SD	(2.41)	(49%)	(1.14)	(16,757.7)	(32,438)	(2,975,636)	(599,283)	(96,366)
Service	Mean	11.54	47.5%	1.95	9,703	8,743	3,255,814	196,986	37,569
	SD	(1.18)	(50%)	(1.53)	(12,532.6)	(51,123)	(7,688,241)	(390,556)	(48,057)

TABLE A2.10. Business Input Purchases

Sector		Monthly Purchases									
		Crops		Livestock Products		Aquacultural Products		Services		Retail Goods	
		NPR	% local	NPR	% local	NPR	% local	NPR	% local	NPR	% local
Retail	Mean	17,919	95.0%	1,362	83.0%	26	89.0%	3,849	86.5%	30,652	80.7%
N = 93	SD	(54,871)	(14%)	(6,881)	(31%)	(173)	(19%)	(12,474)	(19%)	(101,932)	(37%)
Service	Mean	4,137	97.2%	3,828	100.0%	764	80.0%	1,578	93.0%	17,540	83.0%
N = 63	SD	(14,777)	(12%)	(10,857)	-	(2,523)	(42%)	(5,380)	(26%)	(45,721)	(33%)

Figure A2.3 presents the number of businesses started per year in Khairahani/Ratnanagar and Bharatpur. These data show an increasing rate of business startup in recent years, particularly in Khairahani/Ratnanagar, a finding consistent with increasing tourism to the region over the same period.

FIGURE A2.3. Number of Businesses Created Per Year

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