Banking on Protected Areas

Promoting sustainable protected area tourism to benefit local economies

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Contents

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Banking on Protected Areas is the result of a collaborative effort between the World Bank (Urvashi Narain, Hasita Bhammar, Phoebe Spencer) and the University of California, Davis (Prof. Edward Taylor, Heng Zhu, Edward Whitney, Anubhab Gupta, Mateusz Filipski, Elisabeth Earley). We are also thankful to Jo Pendry and Laura Onofri for their contribution to the report.

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Executive Summary

Globally, biodiversity is imperiled. The 2020 Living Planet Index reported a 68 percent average decline in birds, amphibians, mammals, fish, and reptiles since 1970; one third of the world's terrestrial protected areas are under intense human pressure and about two-thirds of the world's oceans suffer from human impact, as habitat loss and degradation, pollution, exploitation, climate change and invasive species drive catastrophic biodiversity losses.

Biodiversity matters because of its intrinsic worth, and because ecosystem services, which depend upon biodiversity, underpin human well-being and support economic activity in a range of sectors. Our survival is, finally, impossible without intact natural landscapes and seascapes. Land- and marine-based ecosystems provide food, oxygen, water, carbon sequestration, resilience in the face of climate change, and a buffer against pandemics. They also foster economic activities such as tourism, which attract eight billion visitors to protected areas in a typical year. The need to protect these natural areas has never been greater.

At the same time, the COVID-19 pandemic has led to a deep global recession in which much economic activity has declined and governments face increasing fiscal constraints and challenges in allocating scarce resources to support the health, security, and development of their populations. The tourism sector too, has suffered significant setbacks. In tourism-dependent economies in Africa and the Caribbean, for example, GDP is projected to shrink by 12 percent. Additionally, many biodiversity-rich protected areas are located in far-flung, neglected rural regions, in which poverty is persistent. Often, protected areas around these rural communities help leverage tourism to provide the few avenues available to support livelihoods and address development challenges.

These intersecting calamities – a pandemic in a time of biodiversity loss – call for a response which speaks to both crises, addressing economic losses and promoting recovery through actions which simultaneously support biodiversity conservation. Such a view brings the world's protected areas into much-needed focus, as they are key to any global effort to contain biodiversity loss. Their role in doing so will be deliberated at the CBD COP-15 this year, where threats to biodiversity and their impacts on development will be stressed, and countries will be encouraged to set aside more land and marine areas for conservation.

How can countries address both crises? Can countries afford to bring even larger areas under protection when the need for economic recovery is so pressing, fiscal spaces are tight, and so many development challenges persist? This study set out to make the case that it is possible. That by **promoting sustainable and inclusive tourism in protected areas**, countries can respond to these escalating crises, recover from the economic fallout of the pandemic, address longstanding development challenges, and conserve biodiversity.

While governments see protected areas as key to addressing biodiversity loss, protected areas are often overlooked in economic development plans and economic recovery strategies. One reason for this is that data gaps make it difficult to demonstrate protected area tourism's far-reaching stimuli to national and local economies, especially in developing countries. *Banking on Protected Areas* study therefore set out to quantify the impacts of protected area tourism on local economies to show that protected areas promote conservation and development.

The study explores economic impacts on local economies, as local economic development is a goal in-and-of itself, and community support is a critical concern for protected areas and is needed to secure their long-term integrity. It therefore estimates protected area tourism's

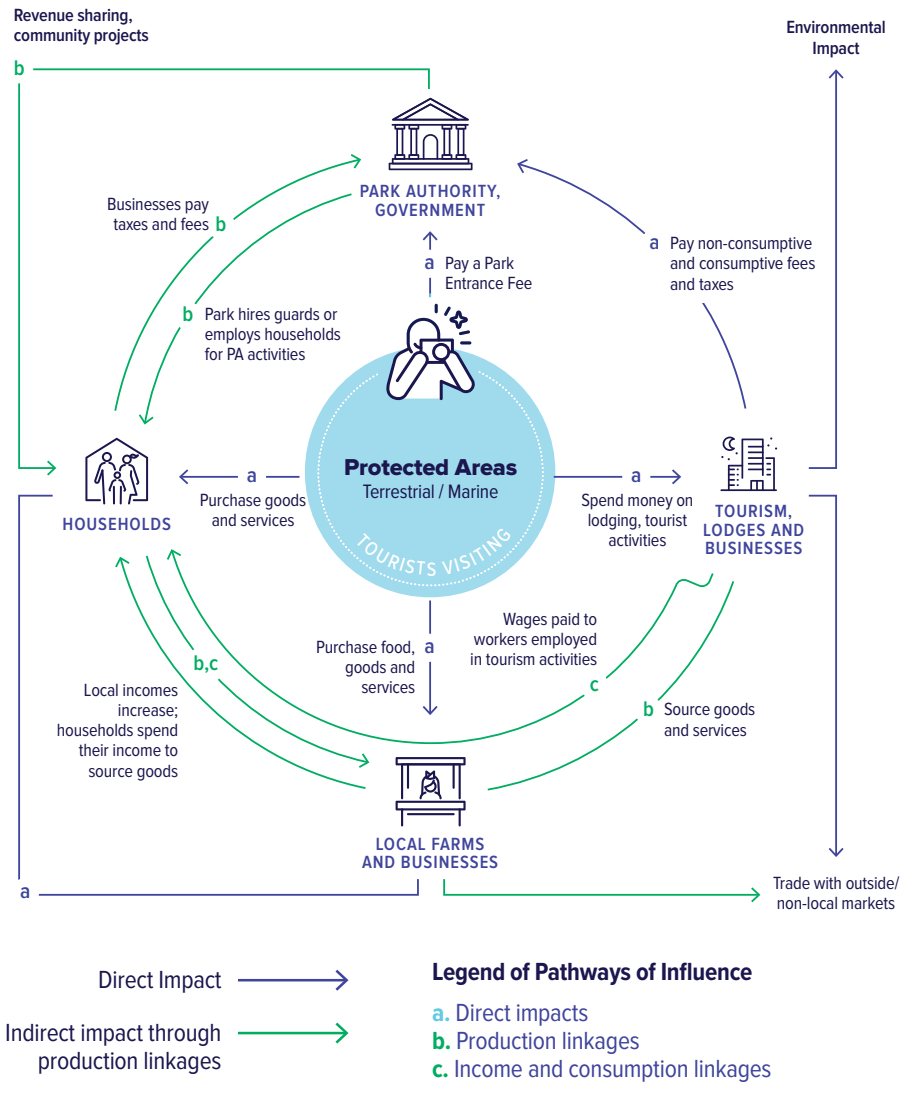
economic costs and benefits to local communities, and explores how benefits may be increased and costs reduced.

At the same time, a key challenge for protected areas is lack of finance. Research shows that poorly financed protected areas lose biodiversity through poaching, livestock incursions, land grabs, and illegal mining and logging; likewise, funding has been found to be the most robust predictor of successful ecological outcomes in marine protected areas. Pre-pandemic figures show a global biodiversity funding gap of US$598–US$824 billion per year, a figure mirrored for protected areas, which have lost further funding due to the pandemic. Thus, the study argues strongly for public investment in protected areas by providing estimated rates of return on investments.

How was the study done?

Four country case studies were undertaken: two in terrestrial protected areas in Zambia and Nepal, and two in marine protected areas in Fiji and Brazil. While the number of countries is small, the case studies - from Latin America, Africa, Small Island States, and Asia - cover a mix of economies, environments, and cultures. Governments were consulted to select study sites, and local students were trained to conduct surveys of tourists, lodges, businesses, and households. Information on production, income, expenditure, and the locations of transactions was gathered, and in each country, partnerships with local universities grounded the case studies in the socio-economic context. Study findings were shared with stakeholders, both in-country and globally, to enhance buy-in and quality.

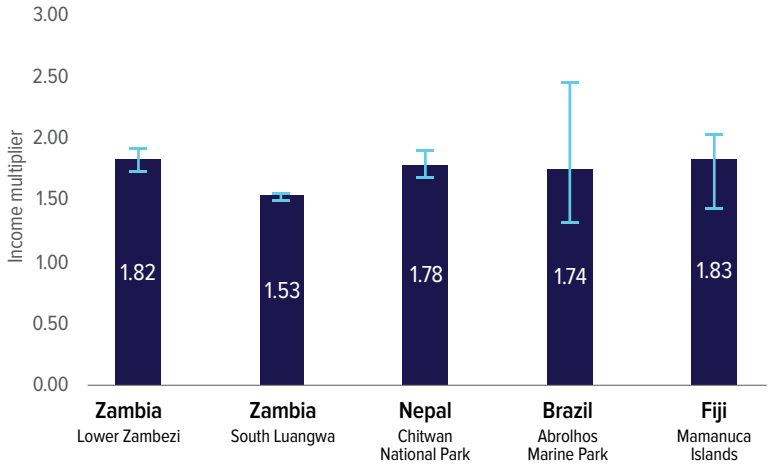
FIGURE ES-1 Economic Impact Pathways for Protected Areas



Source: Adapted from Taylor and Filipski 2014.

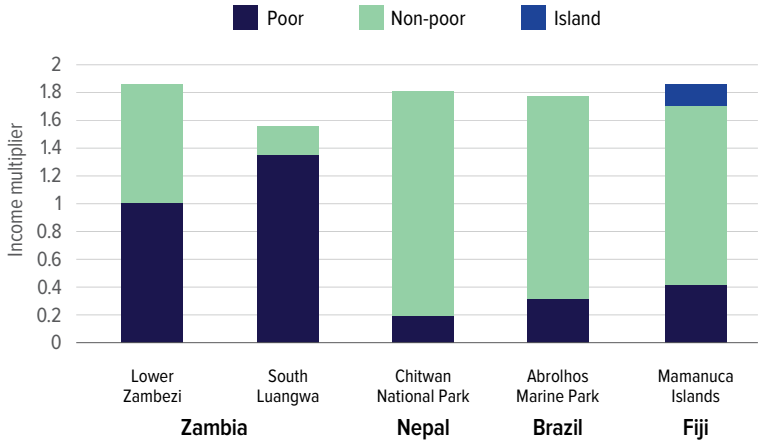
Tourism in protected areas triggers economic activities, and as these activities expand, growing income and expenditure increase the demand for goods and services. Contributions to the economy are direct in the form of visitor spending on park fees, hotels, transport, leisure and recreation, which create employment and support local businesses; while indirect effects occur when tourism businesses and employees further stimulate economic activity by using the services of other local businesses. These direct and indirect impacts converge on an income multiplier, which is defined as the change in local household incomes per unit of money entering the local economy through tourist spending, and is a measure of economic impact. A general equilibrium model is needed to estimate these impacts, and the study adopts a model known as LEWIE - Local Economy-Wide Impact Evaluation. The model attributes values to these multipliers for a range of simulated, direct and spillover impacts, allowing users to: (1) describe the manner in which tourism stimulates local economies, (2) clarify returns on public investment in protected areas, (3) understand impacts of economic conflicts and shocks, and (4) estimate the effects of government policies.

FIGURE ES-2 Income Multipliers, 2019



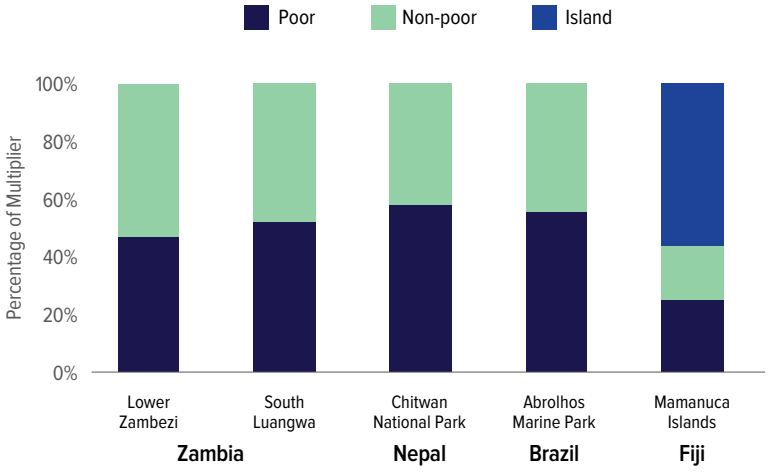
Source: World Bank

FIGURE ES-3 Income Multipliers by Household Type, 2019



Source: World Bank

FIGURE ES-4 Normalized Income Multipliers by Household Type, 2019



Source: World Bank

What did the study find?

Tourism in protected areas generates significant income multipliers. Income multipliers from tourism are greater than one in all country cases, showing that local market linkages are strong, and amplify tourist spending (Figure ES-2); the multipliers also suggest that income leakage from local economies is not considerable. Multipliers across the four country cases are also consistent, suggesting that a healthy protected area tourism sector provides similar income gains to local households across a variety of contexts, despite variations in per tourist spending and numbers of visitors.

Benefits are broad and help the poor. The study reveals that tourism benefits households directly involved in the tourism sector and those indirectly linked with the sector. Households benefit directly and indirectly through production and income linkages - when tourism operators hire local people and buy local goods, and when households spend wages or businesses spend profits earned through the tourism sector. Study findings reveal that despite the larger multiplier shares of non-poor households in most instances (Figure ES-3), tourism appears to benefit the poor more, as normalizing multiplier shares by populations of poor and non-poor residents (Figure ES-4) shows that the multiplier shares per resident are higher for poor residents than for non-poor in all country case studies but one.

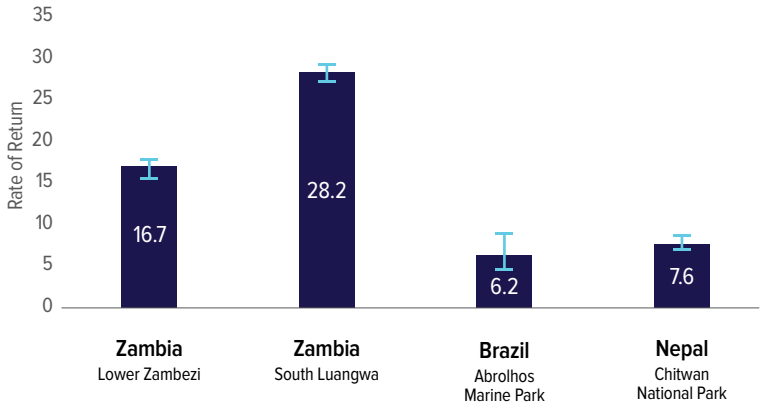
Tourism in protected areas also creates significant job opportunities. Jobs are created directly through tourism activities, and indirectly by stimulating local economies. Beyond the number of jobs, the share of employment supported by the tourism sector is substantial. In Zambia, tourism in protected areas generated jobs for 14 and 30 percent of working age populations around the Lower Zambezi and South Luangwa Parks, respectively. In Nepal, tourism-related jobs around Chitwan National Park are held by 3 percent of the working age population, while in Brazil's coastal region this figure is 12 percent. Tourism in Fiji's Mamanuca Islands created 8,304 jobs (through direct and indirect channels), employing 13 percent of the local population in the Mamanucas and adjoining coastal areas. The study accounts for jobs such as hotel employees, tour operators, and restaurant workers, and those employed as a result of the increased demand for goods and services catalyzed by tourism in sectors such as retail, services, and in some instances agriculture, livestock, and fishing.

Protected areas can impose costs on communities which must be managed. Human-wildlife conflict around terrestrial protected areas, and fishing restrictions in marine protected areas, can cause critical short-term income loss to households which should be mitigated through avoidance measures and timely compensation. In 2019, wildlife caused crop losses of 14 percent around the Lower Zambezi National Park and 11 percent at South Luangwa National Park in Zambia, and 9 percent around Chitwan National Park in Nepal. Over this period, these losses were estimated at US$1.8, 1.2 and 2.9 million in Lower Zambezi, South Luangwa and Chitwan National Parks, respectively. Similarly, marine protected areas may cause short-term income loss by restricting fishing, a major means of livelihood. Often, those suffering the negative effects of proximity to protected areas may not be major beneficiaries of tourism, and these imbalances should be redressed in order to build much-needed community support.

Public investment in protected areas pays off, and generates high economic returns. Rates of return on government spending are significantly greater than one, making protected areas valuable economic assets. As noted, tourism triggers direct and indirect economic impacts in local economies, which in turn generate rates of return on government spending of between $6.2–$-28.2 for every public dollar invested. This accrual of economic benefits relative to government investment in protected areas reveals the potential of these areas to promote green economic recovery and support sustainable development.

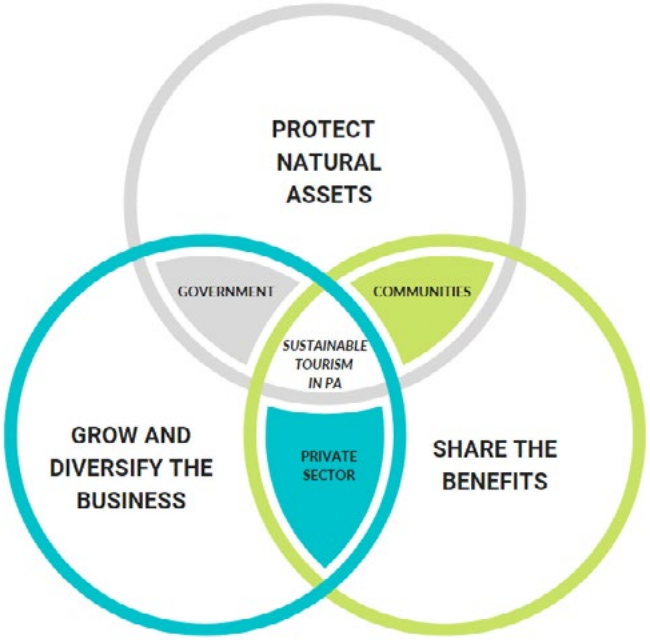
Together, these findings make the case for governments to promote sustainable and inclusive tourism in protected areas to stimulate economic growth and create jobs. Caution is warranted when drawing lessons from the four country case studies, however. For example, because the study uses a static model, it cannot account for fluctuations in natural resources which affect incomes, or the negative environmental impacts of tourism, both of which may reduce the economic benefits of tourism in protected areas. Also, the model does not account for the value of other ecosystem services supplied by protected areas, the focus on local economies neglects the wider economic advantages of tourism, and lack of data prevents the model from capturing all economic linkages and effects. These constraints, when addressed, will increase economic impacts. Finally, the results cannot be easily generalized, as individual sites do not represent the entire protected area system in a given country, which may contain both tourist hotspots and areas in which tourism is not viable.

FIGURE ES-5 Annual Estimated Rate of Return on Government Spending, 2018–2019



Source: World Bank

FIGURE ES-6 Framework for Sustainable Tourism in Protected Areas



Source: World Bank

What lessons can countries draw from the study?

While the findings of this study cannot be applied to all protected areas, they offer lessons from diverse settings from which policies can be tailored. Central to all efforts, however, is the need to fund and manage protected areas well, promote tourism and diversify its offerings, and share benefits with local communities fairly. Taken together, these three factors can enhance development outcomes, secure biodiversity assets and support economic recovery from the pandemic.

RECOMMENDATION 1
Protect the Asset

Formalize Protected Areas. To protect these natural assets, it is necessary to formalize their status. Even if this action restricts resource use, such losses may be offset, as exploited wild stocks recover and disperse under formal protection. Formalization also confers authority on governments to raise environmental standards and reduce the negative impacts of tourism, and this demonstrated commitment to conservation can stimulate private sector investment in tourism services.

Increase Public Investment in Protected Area Management. The study advocates strongly for investment in protected area management; and to accomplish this, it supports the use of financial instruments such as public budgets, as well as innovative mechanisms to tap private sector resources such as conservation trust funds, carbon finance, conservation bonds and collaborative public-private management partnerships.

Build Capacity of Protected Area Managers. To deliver the benefits described in this study, protected areas must be well managed, and the underlying factors associated with poor performance must be addressed. Successful protected areas have qualified managers who understand protected area laws and policies, and the business needs of tourism operators and commercial entities. For example, managing commercial visitor services requires abilities that go beyond the skills of wildlife management, and this capacity must be built.

Monitor Visitors and Impacts. To make the case for public spending, and to aid planning, governments and conservation agencies should regularly assess the impacts of protected area tourism, and use surveys to capture visitor numbers, tourist spending, and seasonal changes in tourism behavior. Such information can shape policies, improve tourist services, assist local communities, refine tourism business models, and demonstrate the economic returns of investing in protected areas.

RECOMMENDATION 2
Grow and Diversify the Business

Diversify Tourism Offerings. In many countries, protected area tourism is focused on a few key locations, which concentrate both positive and negative tourism impacts. In the countries featured in this study, this concentration of visitors at well-known sites makes it important to expand the number of protected area sites, and to select priority sites on the basis of road access, security, biodiversity, landscape attractions, and local stakeholder interest in tourism. To dilute negative impacts, the study also advocates the selection of an expanded network of protected areas for phased tourism development, based on various desirability and feasibility criteria through which sites can be ranked to identify optimal opportunities for private sector participation and community benefits.

Develop Concessions Policies. Another means to promote tourism in protected areas is through concessioning, which can enhance park operations through managing and financing infrastructure, and providing services such as accommodation, food, merchandise, recreational activities, rental equipment, and transport. Similar approaches to outsource tourism development may include leases, management contracts, and licensing, and such mechanisms should stipulate key terms and conditions for business operation, such as duration, type of operation, environmental conditions, and fees for access. Concessions programs should include strong protected area laws and regulations, public support for proposed commercial activities, demonstrated economic benefits, stakeholder input into concession operations, and legal frameworks to support implementing agencies.

RECOMMENDATION 3
Share the Benefits

Formalize Benefit Sharing. As noted, protected area neighbors are essential stakeholders, and sharing benefits in these communities across poor and non-poor households is key to maintaining protected area integrity. Perhaps most importantly, these benefits should be distributed fairly by including the poor and disadvantaged, and the study recommends that policies be put in place to enable this. Advocated benefit sharing approaches include direct and indirect employment, revenue sharing by protected area authorities, revenue sharing schemes from tourism businesses and partnerships, sustainable utilization of plants and animals, and shared decision making and capacity building.

Strengthen Income Multipliers. Because tourism is the strongest lever for delivering protected area benefits to communities, governments should assist households to participate in the tourism economy through entrepreneurship training, skills development, credit services and logistics; governments should also support business diversification, and local procurement to strengthen linkages in local economies, prevent leakage and increase multipliers.

Mitigate and Compensate for Human-Wildlife Conflict. Mitigation and compensation are fundamental to managing human-wildlife conflict and help to secure support for conservation from local communities who are critical beneficiaries and conservation allies. The study stresses the need for well-managed compensation payouts that are timely and transparent. The determination of losses to park neighbors, such as crop losses, is very difficult, and the study also advocates further research, standardized methods for estimating crop losses, and local level management actions, such as seasonal fences and the corralling of livestock, to mitigate losses and build park-neighbor relations.

In conclusion, the pandemic has affected economies globally, leading to large losses in tourism revenue, and a weakened, under-financed conservation sector at a time of unprecedented threats to the biosphere. In such a context, the message of this study is crucial – countries must champion sustainable and inclusive tourism in protected areas in order to recover from the pandemic, conserve biodiversity, and promote sustainable development. This study reveals that conserving biodiversity and promoting tourism can together be compatible with a green, post-pandemic revival that is driven by governments and the private sector, and yield high returns from protected area investments. And in responding to a pandemic that has heightened awareness of inequality, protected area tourism should distribute its benefits fairly in response to development needs, and losses incurred by protected area stakeholders.

1

Introduction

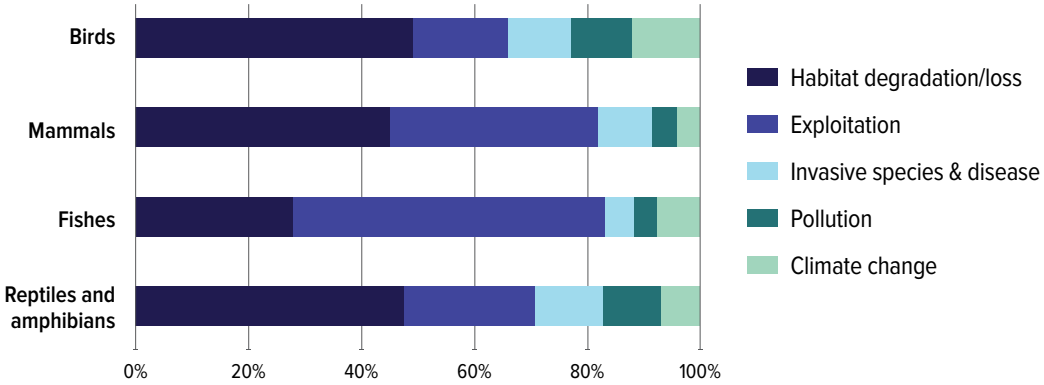
1.1 THE STATE OF BIODIVERSITY

Biodiversity has been declining globally at an alarming rate. Scientists warn that the world may be in the midst of its sixth mass extinction event, this time caused by human activity (Barnosky et al. 2011; Ceballos, Ehrlich, and Raven 2020; Wake and Vredenburg 2008). A recent report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) - Global Assessment Report on Biodiversity and Ecosystem Services (IPBES 2019) - estimates that over one million species are threatened with extinction. The 2020 Living Planet Index reported an average decline of 68 percent in monitored vertebrate species populations between 1970 and 2016 (WWF 2020), while only three percent of the ocean was free from human pressure in 2014 (IPBES 2019).

Biodiversity matters because of its intrinsic value, and because biodiversity and ecosystem services underpin human well-being, livelihoods, and many of the Sustainable Development Goals. As biodiversity declines, so does the health of ecosystems on which key sectors such as agriculture, fisheries, and water utilities rely. Moreover, conserving biodiversity is important for the world's poor because their livelihoods are linked to and dependent on natural ecosystems, and renewable natural capital makes up 23 percent of the wealth in low-income countries (World Bank forthcoming). Forests and trees provide vital resources to 1.3 billion people (World Bank 2016b), over three billion people depend on marine and coastal biodiversity for their livelihoods (UNDP n.d.) and around 1 billion people depend to some extent on wild meat, plants, mushrooms and fish (FAO and UNEP 2020). Biodiversity and ecosystem services also underpin a significant number of jobs. Around 60 million people are employed worldwide in fishing and fish-farming (FAO 2020), and an estimated 45 million jobs are provided by the formal forest sector (FAO and UNEP 2020). Biodiversity and healthy ecosystems mitigate climate change, while the conversion of these systems increasingly risks spillovers i.e. the emergence of zoonotic diseases in humans (Gibb et al. 2020).

The greatest pressures on biodiversity stem from habitat loss, fragmentation, and degradation (IPBES 2019). Land use change has caused 70 percent of global biodiversity loss (WWF 2020). Demand for agricultural land to meet growing food needs has degraded land surrounding protected areas, leading to reductions in species richness and abundance (Newbold et al. 2014). Studies also show the impact of roads and infrastructure development on species decline (Benítez-López, Alkemade, and Verweij 2010). Other threats to biodiversity include over-exploitation of natural resources (including hunting, fishing, and logging), pollution, invasive species, and climate change (IPBES 2019) (see Figure 1) (WWF 2020). Similarly, threats to marine ecosystems include pollution, overfishing, and

FIGURE 1 Drivers of Species Decline for Animal Groups



Source: WWF 2018

marine litter. Climate change is expected to drive biodiversity loss, intensify other drivers, and lead to higher extinction rates (Newbold 2018).

These threats are significant. One third of the world's terrestrial protected areas—2.3 million square miles—are threatened by road expansion, grazing, and urbanization (Jones et al. 2018), while about two-thirds of the world's oceans showed signs of increased human impact between 2008 and 2013 (Halpern et al. 2015), with climate change driving most of these impacts (IPCC 2019). Over 30 percent of fisheries are overfished (FAO 2020). An average of 13,000 pieces of plastic litter can be found on every square kilometer of ocean (UNDP n.d.) and it is estimated that 4.8–12.7 million metric tons of plastic waste enters the oceans every year (Jambeck et al. 2015).

The year 2020 was positioned to be a "super year" for biodiversity. A number of global conferences, including the Fifteenth Meeting of the Conference of the Parties (COP-15) of the Convention on Biological Diversity (CBD), were planned to stress threats to biodiversity and their impacts on development. COP-15 aimed to bring countries together to examine progress toward the Aichi Biodiversity Targets and to negotiate a post-2020 global biodiversity framework (CBD 2019) to address growing threats. The delayed CBD COP-15 will now be held in 2021 and will deliberate the key roles of protected areas in conserving biodiversity and addressing global biodiversity decline.

1.2 BENEFITS OF PROTECTED AREAS

Protected areas, defined by IUCN as "area[s] of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means," are critical to maintaining the earth's biodiversity. Protected areas conserve biodiversity, maintain habitats and species populations, and confer resilience to climate change (Duraiappah et al. 2005; Edgar et al. 2014; Geldmann et al. 2013; Leverington et al. 2010; Melillo et al. 2016; Roberts et al. 2017; Watson et al. 2014). These areas provide ecosystem services such as food and water, sediment retention, and carbon storage. Well-managed marine protected areas have been shown to have five times more large fish biomass and fourteen times more shark biomass than fished areas (Edgar et al. 2014). In addition, protected areas provide landscape immunity[1] in the form of undisturbed habitats which separate people and wildlife, and from which zoonoses are less likely (Reaser, Tabor, et al. 2020). With increasing urbanization, the role of protected areas in providing clean water is significant, as a third of the world's 100 largest cities rely on protected areas for drinking water (Dudley and Stolton 2003). Terrestrial protected areas also sequester 0.5 Pg C annually—approximately one-fifth of the carbon sequestered by all land ecosystems (Melillo et al. 2016). Fully protected marine areas also build resilience against the effects of climate change (Roberts et al. 2017).

Protected areas also support development and are informally dubbed as "engines of development," because of their economic contribution to communities living around them (den Braber, Evans, and Oldekop 2018; Ferraro, Hanauer, and Sims 2011). Naidoo et al. (2019) analyzed socioeconomic and health data for 87,033 children and 60,041 households in 34 developing countries and concluded that people living near protected areas are better off; households near protected areas were on average 20 percent wealthier, had a 26 percent lower probability of being poor than those farther away, and were healthier. Protection of poor areas has also been found to reduce both poverty and deforestation, on average (Ferraro, Hanauer, and Sims 2011). A study in Nepal showed that protected areas reduce poverty without increasing inequality, and that these benefits were greater when a larger proportion of the area was protected (den Braber, Evans, and Oldekop 2018). Marine protected areas, too, reduce poverty through improved fish catches, benefits to health and women (Leisher, Van Beukering, and Scherl 2007), and improved human well-being (Ban et al. 2019).

1 J. Reaser et al., (2020) define 'landscape immunity' as the ecological conditions that, in combination, maintain and strengthen the immune function of wildlife within an ecosystem.

Many countries also reap the benefits of nature-based tourism, and from the perspective of this report, such tourism arguably constitutes the single strongest lever to achieve sustainable development goals through conservation. Protected areas receive 8 billion visits a year (Balmford et al. 2015) and before the COVID-19 pandemic, tourism, including in protected areas, was a rapidly growing economic sector, providing 1 in 10 jobs globally (WTTC 2019b). Tourism not only creates jobs through employment in hotels and hospitality services, but also generates park fees and other resources for conservation and community development. In many developing countries, income derived from protected areas is important to the economy (Balmford et al. 2009). In the Galapagos, tourism contributed to a 78 percent growth in income over six years, creating the fastest growing economy in the world (Taylor, Hardner, and Stewart 2009) over this period. In Rwanda, mountain gorilla trekking in the Volcanoes National Park is now the country's largest source of foreign exchange, generating US$200 million annually (Maekawa et al. 2013). Australia's Great Barrier Reef has been valued at AU$56 billion, contributes AU$6.4 billion per year to the economy and supports 64,000 jobs (Deloitte 2017). According to the OECD, it is projected that ocean-based industries such as marine and coastal tourism will double their contribution to global value-added tourism by 2030 (OECD 2016). Global coral reef tourism is valued at US$36 billion per year—the equivalent of about 70 million tourist visits to reefs (Spalding et al. 2017). In Africa, a burgeoning wildlife economy contributes to employment and revenues through diverse activities (see Box 1) (Snyman et al. 2021), and such nature-based tourism offers countries a means to use natural resources to pursue sustainable development.

BOX 1
Wildlife-Based Economy in Africa

A wildlife economy is defined as *"wildlife, plants and animals (marine and terrestrial), as an economic asset to create value that aligns with conservation objectives and delivers sustainable growth and economic development"* (Snyman et al. 2021). This includes consumptive and non-consumptive uses, as described in Table 1.

In South Africa, for example, wildlife may be farmed on private land, which has led to an increase in game farming and growth in the wildlife economy. It is estimated that the informal African Traditional Medicine industry is valued at about US$1.4 billion per year; in 2018, South African National Parks (SANParks) revenue from the sale of fauna and flora was US$1.3 million, and between 2005 and 2014, the value of South Africa's exports of CITES*-listed species was estimated at US$1.1 billion.

Wildlife economy sectors and related activities

SECTOR	WILDLIFE ECONOMY ACTIVITIES
Agriculture	Game farming and ranching; live capture and sale; cropping and culling; wild harvesting; crops and livestock
Tourism	Wildlife-based tourism; coastal tourism; recreation; sport fishing
Energy	Hydro-electric; wave energy
Fisheries	Multiple use of marine resources; freshwater fisheries; aquaculture and fish ranching; subsistence fishing
Forestry	Timber; non-timber forest products
Health	Bioprospecting
Trade and Industry	Commercial film and photography; wildlife products; bioprospecting; nature-based carbon credits; other payments for ecosystem services; real estate
Other	Education; research, including research involving off-take; cultural activities; religious activities

Source: Snyman et al. 2021

1.3 PROTECTED AREA COVERAGE

In recognizing the need to protect biodiversity and nature, and the role of protected areas in meeting this goal, several countries have increased terrestrial and marine areas under protection over the past decade (see Figure 2). In part, these increases reflect countries' commitments to the CBD Aichi Biodiversity Target 11 to conserve by 2020: "at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscape and seascape." While this target has not been fully met, countries have made significant progress, setting aside approximately 15 percent of the planet's land and 7.6 percent of its oceans (UNEP-WCMC and IUCN, 2020; see Figure 3). The post-2020 framework is expected to be ambitious, and to call on countries to set aside more land for protection and biodiversity conservation. Additionally, since 2018, other effective area-based conservation measures (OECM)[2] have been recognized as essential to achieve conservation targets outside of protected area networks. As of September 2020, there are 146 OECMs covering almost 61,000 km^2 of land and over 273,000 km^2 of ocean (Dudley et al. 2018).

1.4 PROTECTED AREA CHALLENGES

While Figure 3 suggests significant areas under protection, such areas face challenges which severely limit their efficacy. For example, in the Pacific Ocean's Coral Triangle, an assessment of coral reefs in marine protected areas found that only 1 percent of these areas were effectively managed (Burke et al. 2011). Poor management of protected areas can lead to deforestation, which may lead to a loss of formal protection through downsizing or degazetting (Mascia and Pailler 2011; Tesfaw et al. 2018).

An analysis of the Global Database on Protected Area Management Effectiveness reported that less than a quarter of protected areas had adequate staff and budgets (Coad et al. 2019), and that this hampered conservation, habitat management, patrolling, community engagement, and wildlife monitoring. Other challenges related to lack of management plans, equipment and infrastructure, while the size and designation of protected areas may also limit conservation outcomes (Hockings 2006).

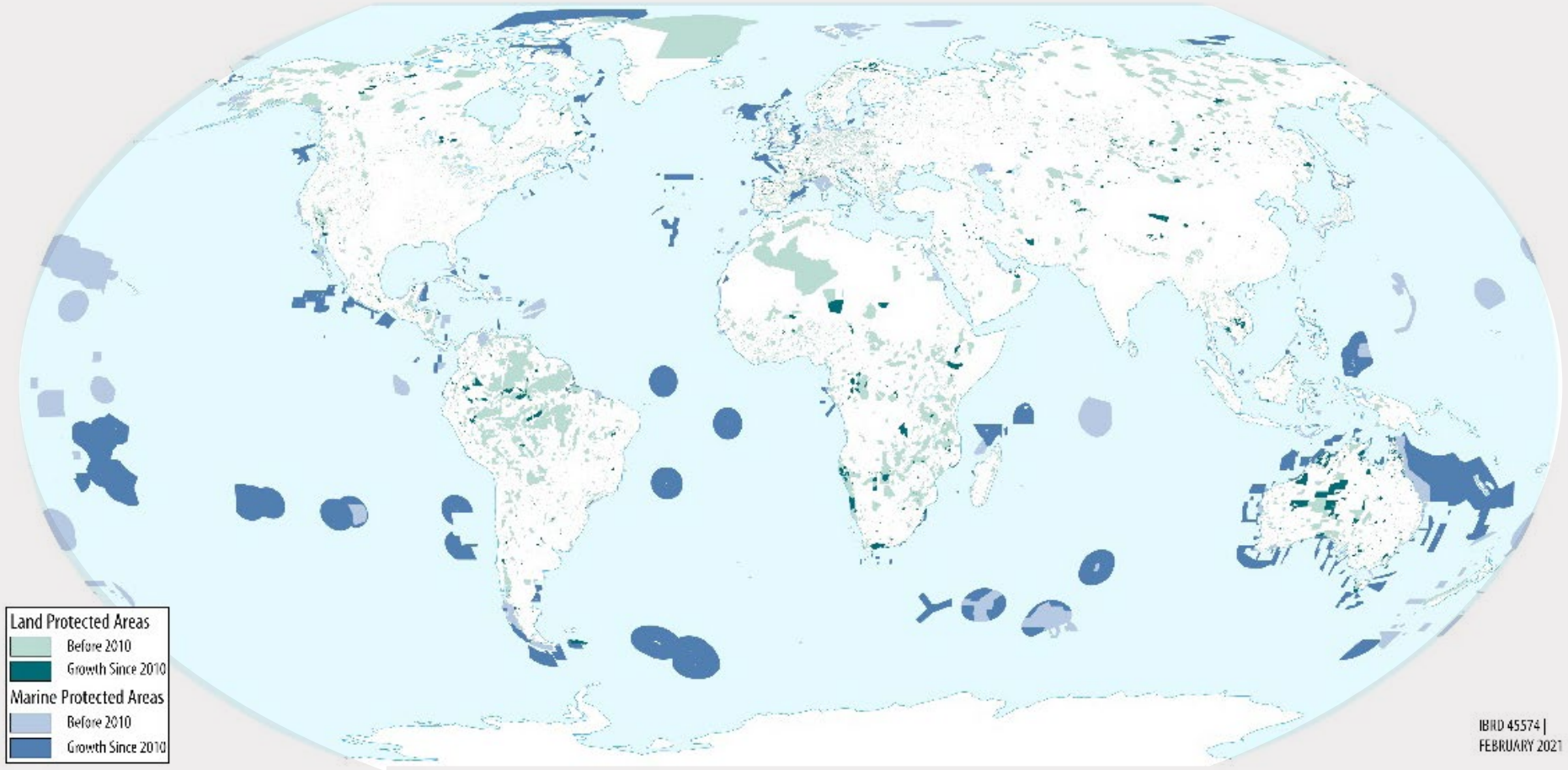
The illegal wildlife trade is the fourth largest global criminal enterprise, exceeded in value only by drug, human trafficking, and counterfeiting activities. Challenges to combatting wildlife crime include weak legislation and limited law enforcement capacity (UNODC 2020). Wildlife crime is a growing threat to wildlife in protected areas. There are reports of increased poaching and exploitation of natural resources in Asia and southern and eastern Africa (Hockings, Dudley, and Elliott 2020). Poaching in marine protected areas as a result of poor enforcement has also been documented (Bergseth et al. 2018). A World Bank study found that over the period 2010–2016 more than US$2.35 billion was invested in combatting the illegal wildlife trade in Africa and Asia, US$948 million of which was dedicated to protected area management as a strategy to reduce poaching (World Bank 2016a). This is a small amount compared to the estimated costs of illegal logging, fishing and trade in wildlife which are estimated to be over US$1 trillion annually[3] (World Bank 2019a). Illegal fishing is responsible for the loss of 11–26 million tons of fish each year, equivalent to US$10–23 billion (FAO 2019).

Competition over natural resources intensifies the challenges to protected area management.

2 An OECM is a geographically defined area other than a Protected Area, managed to achieve sustained, long-term, in-situ conservation of biodiversity, ecosystem functions and services; and, where applicable, cultural, spiritual, and socio–economic values (CBD, 2018).

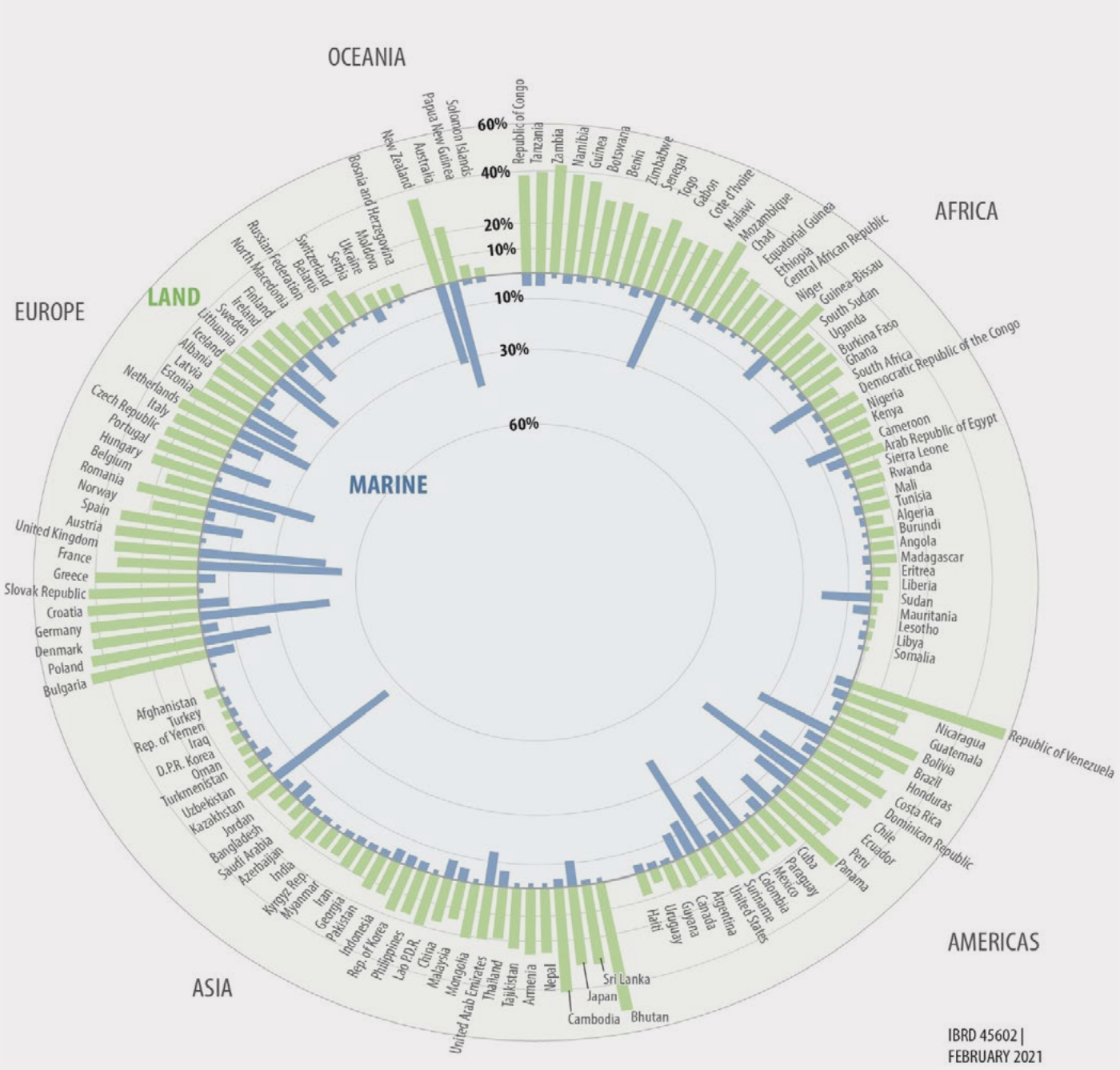
3 More than 90 percent of these losses are from ecosystem services that forests, wildlife and coastal resources provide, and that are not currently priced by the market, such as carbon storage, biodiversity, water filtration, and flood retention (World Bank 2019a).

FIGURE 2 Growth in Protected Areas since 2010



Source: UNEP-WCMC and IUCN 2020

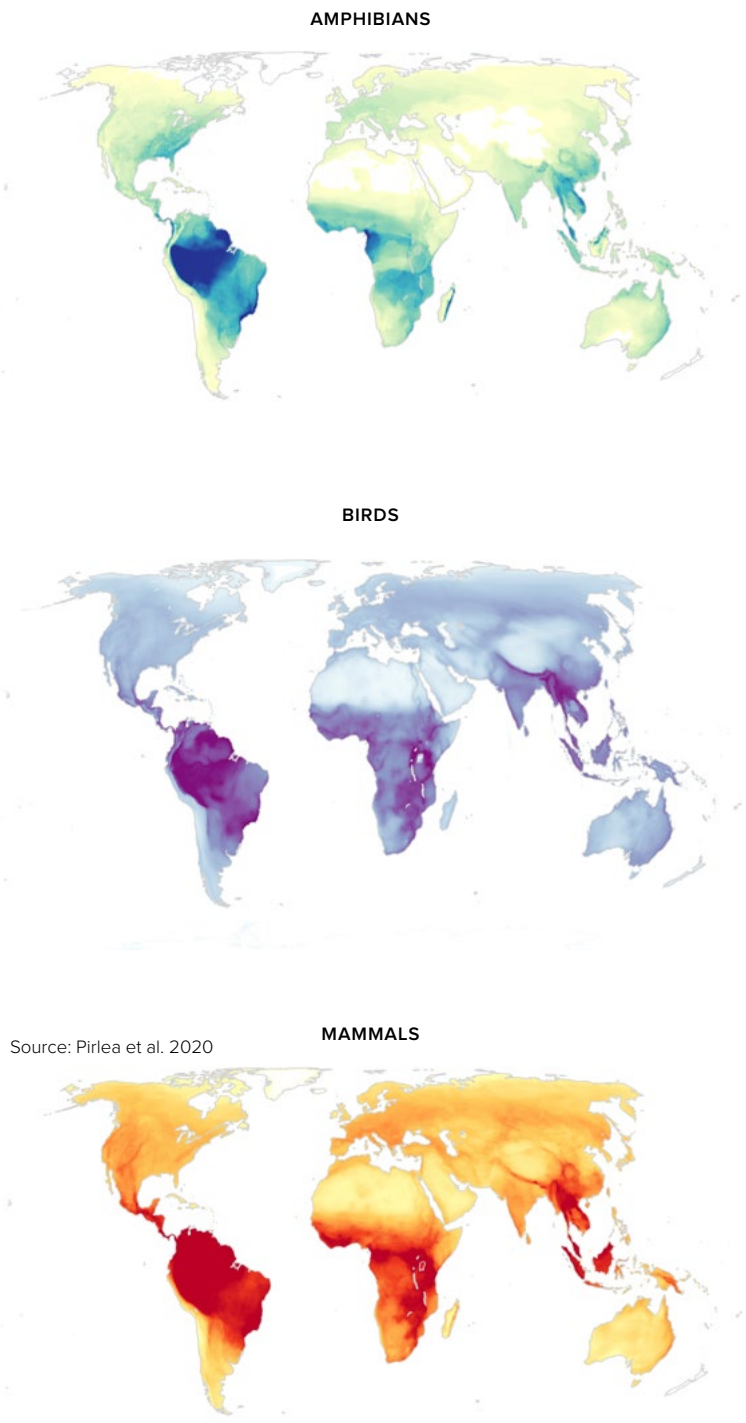
FIGURE 3 Terrestrial and Marine Protected Area Percentages Per Country



Source: Adapted from Maxwell et al. (2020), using data from UNEP-WCMC and IUCN 2020.

Note: The figure is showing the increase in area coverage (%) per year for marine and terrestrial protected-area estates for countries >25,000 km^2.

FIGURE 4 Concentration of Biodiversity in the Tropics
Species density distribution cross the world



Source: Pirlea et al. 2020

In Latin America, large scale habitat loss from agricultural expansion, infrastructure development, cattle ranching, and fires threaten fragile ecosystems. Human encroachment is increasing across the world's protected areas as well. In sub-Saharan Africa, cropland coverage inside protected areas has increased at nearly double the rate of coverage in non-protected areas. In Latin America, outside the Amazon biome, agricultural pressure increased by 10 percent in protected areas (Geldmann et al. 2019).

Poor management can also increase human-wildlife conflict, leading to loss of livelihoods for communities living near protected areas, loss of wildlife through retaliation, and diminishing support for conservation (Hill, Osborn, and Plumptre 2002). Over 75 percent of the world's felid species are at risk through human-wildlife conflict (Inskip and Zimmermann 2009).

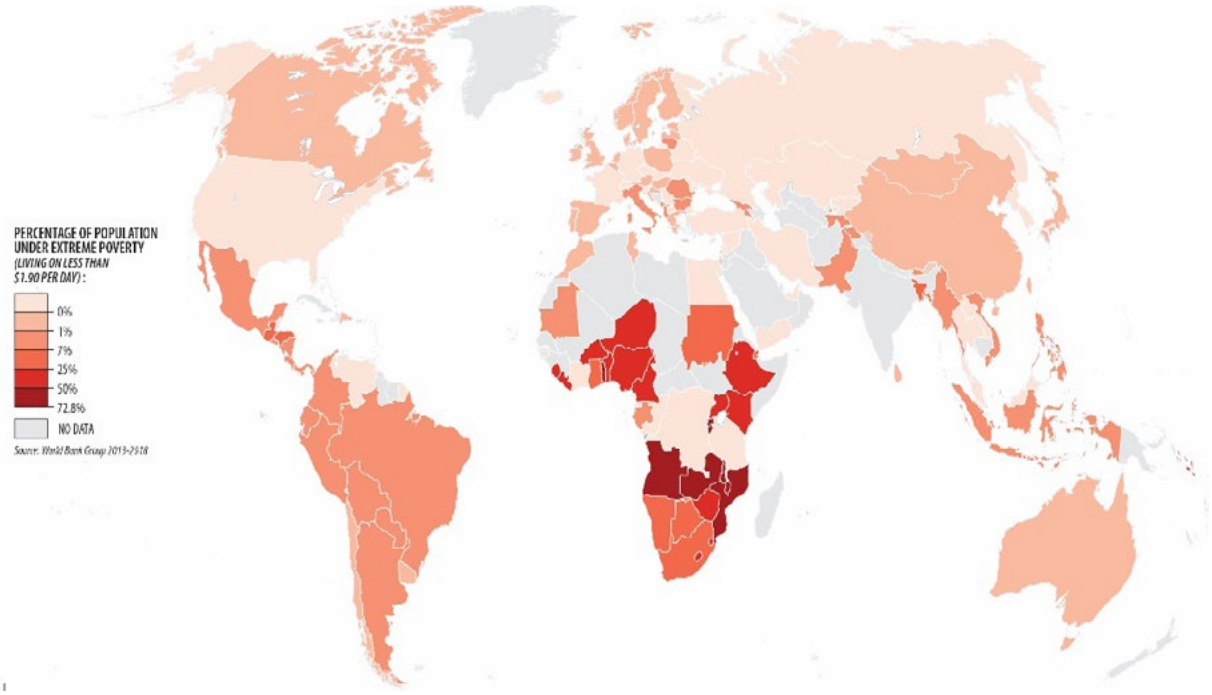
Lack of finance and community engagement to support conservation are likely the most critical challenges to the management of protected areas and are discussed below.

1.4.1 Protected Area Funding

Research in marine protected areas has shown that funding is the most robust predictor of success for ecological outcomes (Gill et al. 2017), and that poorly financed protected areas lose biodiversity through poaching, livestock incursions, land grabs, and illegal mining and logging.

Broadly, the global biodiversity funding gap hovers between US$598 billion and US$824 billion per year (Deutz et al. 2020), and these gaps are mirrored for protected areas, which are underfunded worldwide (Coad et al. 2019; Gill et al. 2017; IUCN ESARO 2020; Waldron et al. 2017; Watson et al. 2014). Nearly all protected areas in Africa are inadequately funded, and a deficit of US$1 billion annually must be addressed to save iconic species and landscapes (Lindsey et al. 2018). Protected areas in Latin America are under-funded by approximately US$700 million annually, and this figure is likely to grow (Bovarnick et al. 2010). The funding needed for a global network of marine protected areas covering 20–30 percent of the seas is estimated to be between US$5 and US$19 billion per year (Balmford et al. 2004).

FIGURE 5 Global Distribution of Extreme Poverty



Source: World Bank 2018

1.4.2 Community Benefits

The tropics are home to a large share of the world's biodiversity, as seen in Figure 4 (Barlow et al. 2018; Raven et al. 2020). Areas in these latitudes also have high levels of poverty (Figure 5). The relationship between protected areas and poverty is, however, complex. Many poor, rural communities depend upon natural resources for food, fuel, and livelihoods, and may be prevented from harvesting these resources from protected areas; in the short term this may lead to a loss of support for conservation.

Local communities may bear other costs of biodiversity conservation, such as changes in land tenure or governance, displacement, and the costs of human-wildlife conflict (see Box 2).

In the absence of benefits from protected-area tourism, communities bearing the costs of human-wildlife conflict are unlikely to support conservation, while the loss of tourism revenues from local economies, known as revenue leakage, may further alienate local communities. In Uganda's Bwindi Impenetrable National Park, tourism leakage was estimated at over 75 percent (Sandbrook 2010), while in Botswana, value chain analysis showed only 37 percent retention of tourism revenues in the local economy (Rylance and Spenceley 2017).

Many governments recognize the importance of benefit-sharing mechanisms[4] (see Box 3) to garner local support for protected areas (Spenceley, Snyman, and Rylance 2019), but even established mechanisms may fail to deliver benefits (Spenceley, Snyman, and Rylance 2019) for reasons including, but not limited to (i) excessive bureaucratic processes, (ii) poorly designed mechanisms in which benefits do not off-set costs of conservation, are low, or are captured by elites, or (iii) lack of agreement on means of disbursement and recipients. It is also important to note that benefits of living around protected areas accrue collectively, while costs are borne by individual households (Munanura et al. 2016).

Research indicates that equitable and transparent benefit-sharing may advance development and conservation goals (Snyman and Bricker 2019), and that conservation and socioeconomic gains are more likely when protected areas pursue co-management, reduce economic inequalities, empower local people, offer cultural benefits and reduce negative livelihood impacts (Oldekop et al. 2016).

4 Benefit sharing mechanisms include tangible benefits such as jobs, direct income, and revenue sharing from park entrance fees; and intangible benefits include capacity building, skills training, and cultural benefits (Spenceley, Snyman, and Rylance 2019).

BOX 2

Human-Wildlife Conflict Costs to Local Communities

Human-wildlife conflicts typically occur in agricultural and production landscapes which are near protected areas. The impacts of human-wildlife conflict include, but are not limited to, loss of livelihoods from crop raiding, livestock depredation, damage to property and/or loss of life.

In **Bhutan**, a survey of 274 households living near the Jigme Singye Wangchuck National Park reported a yearly average financial loss equal to 17 percent of the total per capita cash income due to livestock predation (Wang and Macdonald 2006). Around **Chebera-Churchura National Park in Ethiopia**, a study of 145 households estimated economic losses of US$75,234 caused by wildlife between 2007–2011, with 30 percent of livestock lost over a three year period (Acha, Temesgen, and Bauer 2018). In **Uganda**, a survey around Kibale National Park estimated that the average financial loss for farmers around the park over six months was US$74 (1.5 percent of median household capital asset wealth). Approximately 73 percent of respondents experienced crop raids in which 45 percent of their maize was lost to animals from the protected area (Mackenzie and Ahabyona 2012).

Global estimates of the costs of human-wildlife conflict are not available, and only 10 percent of studies on this topic have quantified its economic impacts (Inskip and Zimmermann 2009). These studies reveal that (i) direct costs are unevenly distributed within communities (Thirgood, Woodroffe, and Rabinowitz 2005); (ii) individual/household losses may be severe (Woodroffe et al. 2005); and (iii) economic costs only partially describe social and cultural impacts because livestock and produce are forms of wealth which enhance resilience (Dickman, Macdonald, and Macdonald 2011).

BOX 3

Efforts to Share Benefits from Tourism in Protected Areas in Africa

To work towards a pro-poor distribution of benefits, governments in several African countries have instituted mechanisms to share a percentage of park and protected area entry fees with neighboring communities. These funds are typically invested in local projects rather than distributed as direct cash transfers (Mitchell and Ashley 2009).

In Kenya, local governments distribute approximately 19 percent of tourism revenues under their jurisdictions to local communities living next to protected areas including Maasai Mara National Reserve, Lake Bogoria National Reserve, and Samburu National Reserve. In parks run by the Kenya Wildlife Service, a percentage of park fees is invested in community projects through their Community Service department (Weru 2007). In Tanzania, revenue shares of 7.5–25 percent of fees from tourism and hunting benefit local communities through development projects such as schools, clinics, bridges, water infrastructure, and training programs (Mtui 2007). In Rwanda's National Parks, a 2005 scheme distributed 5 percent of park revenues through local districts (Verdugo 2007), while in Namibia, members of the Namibia Association of Community Based Natural Resource Management Support Organizations (NACSO) receive up to 40 percent of revenues from community conservancies in the form of cash incomes, game meat, or development projects (IUCN ESARO 2020). Spenceley, Snyman, and Rylance (2019) describe many more African examples of revenue sharing between protected area authorities/tourism businesses and local communities.

1.5 RATIONALE FOR THE STUDY

Government spending is generally determined by limited resources and competing demands, and under such conditions, governments may be reluctant to invest in protected areas if they are unable to quantify the economic returns provided by such areas to local and national economies. If returns on public investment are not demonstrated, this reinforces the perception that protected areas "do not pay for themselves" and that funding protected areas funds only conservation. Thus, it is crucial to be able to demonstrate to governments that investing in protected areas helps economic growth, and that protected area tourism can advance sustainable development agendas.

In countries where returns on protected area investments are tracked, governments have found wide-reaching benefits. The United States, for instance, invests US$3 billion annually in its national park system which contributes up to US$20 billion to GDP via visitor spending in gateway communities (Cullinane Thomas and Koontz 2020). Similarly, Parks Canada generated returns to GDP of US$3.1 billion, and tax revenues of almost US$0.4 billion for a public investment of approximately US$1 billion (Parks Canada Agency 2019). In countries across southern Africa, nature-based tourism reportedly generates revenues comparable to farming, forestry, and fisheries combined (Scholes and Biggs 2004). Such evidence vindicates government investment in national parks and other protected area systems, and advances conservation and development goals. However, such evidence is often lacking in developing countries.

Tourism in protected areas is arguably the most important lever to deliver economic benefits such as jobs to communities living near protected areas, and thus, a major objective of this report is to describe these benefits to local economies in order to advance the case for investment in conservation. Tourism activities in protected areas vary depending upon the IUCN designation of the protected area (see Figure 6).

In 2018, for example, wildlife tourism contributed US$120.1 billion in GDP to the global economy and sustained 21.8 million jobs (WTTC 2019a). An analysis of over 240 protected areas, covering 40 million hectares, in seven countries in eastern and southern Africa (Kenya, Tanzania, South Africa, Namibia, Eswatini, Uganda and Ethiopia) found that nature-based tourism accounted for approximately 80 percent of the income generated by protected areas (IUCN ESARO 2020) (see Figure 7). Such evidence strengthens the economic case for public investment in protected areas, much like investments in roads and other forms of public infrastructure and assets needed for development. Describing the other benefits of protected areas to local economies, including ecosystem services, biodiversity conservation, habitat support, and climate co-benefits, is beyond the scope of this work. The second main objective of this study is to understand how tourism helps local communities, the ripple effects these benefits produce in local economies, and how these benefits can be improved and equitably distributed.

It is important to note that tourism is not a panacea for challenges faced by protected areas. Not all protected areas can attract tourists, who avoid some destinations out of concern for safety, lack of infrastructure, or accessibility. The growth of protected area tourism may also generate adverse impacts such as degradation of habitats and pollution (Newsome and Hughes 2018), and this study draws attention to these impacts where possible, and offers recommendations to manage them. The role of private finance will be key in addressing significant resource gaps for biodiversity conservation. While beyond the scope of this study, we draw attention to the report: 'Mobilizing Private Finance for Nature' (see Box 4), which addresses this topic.

OBJECTIVES OF THE REPORT

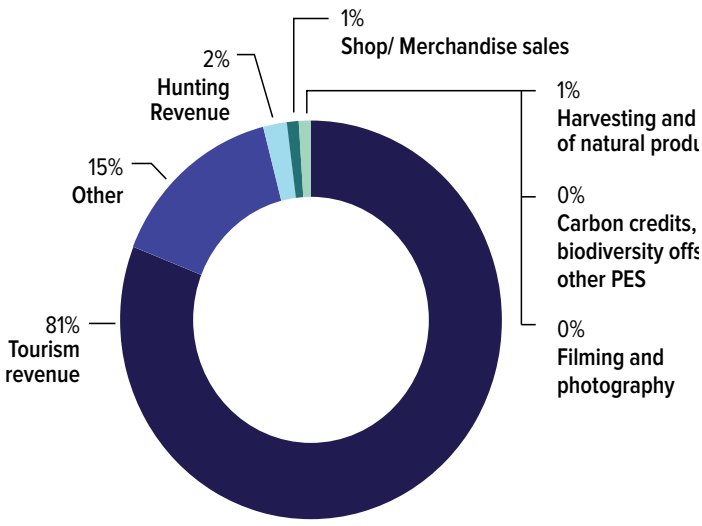
- To assess the effects of protected area tourism on local economies
- To estimate the benefits of tourism for local communities and to explore how these benefits can be improved
- To assess the impact of COVID-19 and potential for green recovery

FIGURE 6 IUCN Protected Area Categories

IUCN Protected Area Category*	Primary goal and protected value(s)	Approach to tourism and visitor use
Ia) Strict Nature Reserve	Biodiversity or geoheritage protection (ecological and scientific values)	• Public access only possible through organized scientific, citizen science or volunteer service programs
Ib) Wilderness Area	Protection of the natural character and condition of unmodified or slightly modified areas (wilderness and ecological values)	• Low-density, self-reliant visitor use is often a management objective • Restricted public access in terms of amount of use, group size, activity, etc. • Tourism activity limited and highly regulated (e.g., through special use permits)
II) National Park	Protection of an ecosystem and its large-scale ecological processes (ecological, recreation, and community values)	• Visitor use and experience is often a management objective • A range of recreation opportunities typically provided through zoning, facility development, and visitor services (countries have marked differences in their attitudes to tourism accommodation within protected areas)
III) Natural Monument	Conservation of specific natural features (ecological, recreation, and community values)	• Visitor use and experience is often a management objective • Recreation opportunities are typically provided to facilitate feature protection and public understanding
IV) Habitat/ Species Management Area	Conservation through management intervention (ecological, community, and recreation values)	• Recreation visitation and commercial tourism are usually management objectives • A range of recreation opportunities is provided with associated facilities and services • Commercial tourism common for wildlife viewing
V) Protected Landscape/ Seascape	Landscape/ seascape conservation (community, ecological, and recreation values)	• Tourism is usually a management objective • A range of recreation opportunities is provided with associated facilities and services • Commercial tourism common
VI) Managed Resource Protected Area	Sustainable use of natural ecosystems (community, recreation, and ecological values)	• Recreation visitation and commercial tourism can be key objectives • A range of recreation opportunities is provided with associated facilities and services • Commercial tourism common

Source: World Bank 2020c

FIGURE 7 Tourism Generates Approximately 80% of All Revenues from Protected Areas in Eastern and Southern Africa



Source: Adapted from IUCN ESARO 2020

Note: Countries included in the figure are Ethiopia, Eswatini, Kenya, Namibia, South Africa, Tanzania, and Uganda

This study comes at a time when the economic fallout of the COVID-19 pandemic is jeopardizing conversation efforts, and has impacted tourism worldwide. The real GDP for tourism-dependent economies in Africa and the Caribbean nations is projected to shrink by 12 percent (IMF 2020) against a projected global average contraction of 4.4 percent. The tourism sector is the largest market-based contributor to protected area financing (Spenceley, Snyman, and Eagles 2017), and thus, its decline will jeopardize conservation, protected area management and the financial stability of the conservation sector (Peter Lindsey et al. 2020). As the pandemic has tragically demonstrated, over-dependence on tourism to fund basic conservation activities can lead to financial losses which jeopardize protected area systems and decades-long efforts to promote conservation. Additionally, communities around protected areas, many of whom are extremely poor, and depend on benefits from tourism, are burdened with the loss of these benefits. Thus, an additional objective was added to this report**: to assess the impact of the COVID-19 pandemic on tourism in selected sites and propose a pathway for green recovery.**

The audience for this report is wide ranging, from policy makers in low and middle-income countries, especially from the Ministries of Finance, Economic Planning, Tourism, and the Environment; to conservation practitioners, tourism operators, civil society organizations, and donors who wish to support protected areas.

BOX 4.
Opportunities to Mobilize Private Finance for Nature

A 2020 World Bank report, 'Mobilizing Private Finance for Nature', flags the need to attract private finance to address the systemic impacts on economies of the rapid loss of biodiversity and ecosystem services. While public sector financing is insufficient in the face of this challenge, the report highlights the role of the public sector to support an enabling and incentivized regulatory environment, to provide data, and to help investors understand the value of nature and the financial and economic risks associated with its loss.

The report highlights the growing private sector interest in—and capital available for—biodiversity financing, and notes the approaches that are emerging to address the challenges investors face – namely, lack of steady cashflows, below-market returns, and the small scale and heterogeneity of conservation initiatives. Examples include PPPs which blend conservation efforts with commercial nature-based activities, or increase the flow of capital to conservation via diverse commercial revenue streams such as the sale of carbon credits in the voluntary carbon market, tourism projects, and sustainable agriculture, often working with local communities. Private sector stakeholders are also working with public sector managers to attract new sources of revenue for conservation projects and to manage them more effectively. Innovative financing mechanisms, including environmental impact bonds and insurance (such as the parametric coral reef insurance policy in Quintana Roo, Mexico) can broaden the investor base and reduce funding shortfalls.

Source: World Bank Group 2020a

2

Assessing the Economic Impacts

Four country case studies were undertaken to pursue the objectives of the report as given in the previous section. Two of these case studies focused on terrestrial protected areas – in Zambia and Nepal – and two focused on marine protected areas (MPAs) – in Fiji and Brazil (see Table 1). This global report synthesizes the findings of the four country case studies, each of which is also available as a standalone report.

These four countries cover a mix of economies, environments and cultures. Ongoing World Bank engagements on protected areas and tourism helped to align this study with existing priorities, and protected area sites were selected in consultation with governments. The criteria for selecting the sites are provided (see Box 5).

Furthermore, in each country, the study focused on one or two protected areas due to financial, logistical and time constraints. At the same time, the intent was to pilot a robust methodology, build local capacity, and formalize methods for similar studies globally.

Box 5. Criteria for Site Selection

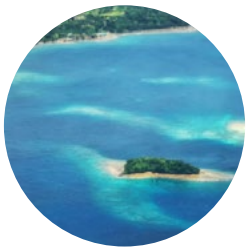
i. Tourism numbers are sufficient for sampling purposes

ii. Site is a formally designated protected area or in the process of registration

iii. Government buy-in and/or recommendation for the site

iv. Manageable logistics for site visits

TABLE 1 Protected Area Study Sites

MARINE PROTECTED AREAS		TERRESTRIAL PROTECTED AREAS	
	**BRAZIL** Abrolhos Marine National Park, IUCN Category II		**NEPAL** Chitwan National Park, IUCN Category II
	**FIJI** Tavarua, Navini, and Malolo (Mamanuca Islands archipelago)		**ZAMBIA** Lower Zambezi National Park, IUCN Category II South Luangwa National Park, IUCN Category II

2.1 METHODOLOGY

2.1.1 Estimating the Economic Impact of Tourism in Protected Areas

To estimate the economic impact of tourism in protected areas, it is necessary to assess tourism's direct and indirect contributions to economic growth. Contributions to the economy are direct in the form of visitor spending on park fees, hotels, transport, leisure and recreation, which create local employment; indirect effects occur when tourism businesses and employees further stimulate economic activity by using the services of other local businesses.

A variety of methods have been used to estimate the economic effects of tourism at local and national levels. Some of the more common approaches are input-output models, Keynesian multiplier models, social accounting matrix models, computable general equilibrium modelling, tourism satellite accounting modelling, and value chain analysis (see Table 2).

There is no single, standard method to study the impacts of tourism, and research in this field must tailor approaches to the environmental and social contexts in which tourism occurs. Differences between approaches are highlighted in Table 3, which presents the results of studies that used methods listed above, along with their strengths and limitations.

TABLE 2. Summary of the Primary Objective of Analysis and Corresponding Research Methods

Primary Objective of Analysis	Research Methods
Assess the economic effects (direct, indirect, static & dynamic) of tourism on the regional/national (macro) economy	Regression Analysis, Social Accounting Matrices, Computable General Equilibrium models, Input-Output Models, SAM multiplier Models
Describe the size of the tourism sector	Tourism Satellite Accounts
Measure impacts of tourism on poor people or local economies at tourist destinations	Applied General Equilibrium, Livelihoods Analysis, Enterprise Analysis, Local Economic Mapping and Pro-poor Value Chain Analyses, Ecosystem Service Approach

Source: Revised from Mitchell and Ashley 2009

TABLE 3. At a Glance: Key Studies on Local or National Economic Impacts

Method	Description	Strength/ Limitations	Case study example
Tourism Expenditure Survey + Input-Output Table	Survey conducted on visitor expenditures among domestic and international tourists at border crossings. These are combined with IO tables (based on a matrix of inter-sectoral flows accounting for the intermediate demand for goods and services between economic sectors) to estimate economic impact of tourist spending at national level.	**Strengths:** Provides information on tourist expenditures, characteristics, and satisfaction; and estimates impact on value added, wages, employment, tax revenue, and imports. **Limitations:** Only direct impacts, and indirect production linkages are considered. Does not consider household consumption linkages. Impacts not disaggregated by households, firms, or other institutions. Factor of production and output prices do not vary.	**Zambia -** The average protected area tourist spent US$1,100 (2005 US$) per trip in Zambia in 2005, adding up to a total of US$194 million or 3.1% of 2005 GDP for the 176,000 tourists. 19,000 formal jobs were created (World Bank 2007). **Uganda -**The analysis shows that tourist exports amounted to US$431 million in 2019 (2019 US$), or 6.3% of total exports (World Bank 2019b). **USA** – Visitor Spending Effect Model of the US NPS:[5] In 2019, NPS visitor spending directly supported 204,800 jobs, $6.3 billion (2019 US$) in labor income, $10.7 billion in value added, and $17.2 billion in economic output in the national economy. Combined with secondary effects, NPS visitor spending supported a total of 340,500 jobs, $14.1 billion in labor income, $24.3 billion in value added, and $41.7 billion in national economic output (Cullinane Thomas and Koontz 2020).
Tourism Expenditure Survey + Social Accounting Matrix (SAM)	A SAM is a data framework that usually represents the real economy of a country or other entity, distinguishing between activities and commodities, and ensuring revenues are equal to total expenditures (Chikuba, Syacumpi, and Thurlow 2013).	**Strengths:** Same as above and brings in household consumption linkages. Impacts can be disaggregated by households, firms, and other institutions. **Limitations:** Factor of production and output prices do not vary.	**Zambia -**Tourism in South Luangwa contributed ~US$38 million (2015 US$) in value-added (GDP) and US$19 million in wages and salaries to the country's economy, and supported ~3,000 jobs (Chidakel, Child, and Muyengwa 2021).
Tourism Expenditure Survey + General Equilibrium Model	Micro economy-wide approach using data from tourist, business and household surveys. SAM and small-economy general-equilibrium models consider direct and indirect income effects. (Taylor, Hardner, and Stewart 2009)	**Strengths:** Same as above and allows factors of production and output prices to vary. **Limitations:** Data intensive. Requires specialized software (e.g., GAMS) and training.	**Ecuador** – Tourism generated US$62.9 million (2005 US$) on the Galapagos islands and US$113.9 million in Ecuador; US$1000 increase in foreign tourist expenditure raises island income by US$218; US$1000 increase in domestic tourist expenditure results in a US$429 increase in total island income. because most domestic tourists spend money on the island (Taylor, Hardner, and Stewart 2009). **Kenya** - Every dollar invested in conservation and wildlife tourism could generate benefits 3 to 20 times higher (Damania et al. 2019).
Tourism Economic Model for Protected Areas – (TEMPA)	As part of a larger effort to assess the socio-economic impacts of GEF-funded protected areas, TEMPA was developed for project managers and stakeholders to present tourism spending data with a spreadsheet-based tool.	**Strength**: The tool can be used to calculate the economic impact of a park by non-economists, park managers, and other field-based stakeholders operating under budget and staff restrictions. **Limitation:** Use of multipliers from the input-output tables of other sectors, which may be outdated or over-estimated.	The TEMPA tool requires three key inputs, namely, the number of visitors, their expenditures, and multipliers, all of which come from different sources.

5 Approach uses IMPLAN multipliers to scale up estimates from individual protected areas to national levels. IMPLAN leverages granular data across industries to calculate multipliers for regions of interest and ensures that the analysis represents complete impact. The foundation upon which IMPLAN economic impact analyses are built is the input-output (I-O) model.

2.2. AVENUES FOR ECONOMIC IMPACTS OF PROTECTED AREAS

Figure 8 describes the economic pathways within the local economy (see Box 6 for definition), including households, tourism and non-tourism businesses, and the government. Tourism in protected areas can impact local economies through direct (shown by arrows a in Figure 8) and indirect channels. Indirect channels can, in turn, be broadly classified into two types: production linkages (shown by arrows b in Figure 8 and income and consumption linkages (shown by arrows c in Figure 8).

Box 6. What is a Local Economy?

A local economy could be a village, a collection of villages, a town, region, or even country. The definition of "local economy" will depend on the goals of the study, and wider areas will capture more economic activities and benefits. To be effective, management plans for protected areas should incentivize surrounding communities to support conservation; and thus, for the purpose of this study, the local economy is defined by the communities which lie within the protected area's sphere of economic influence as determined by community members, tourism operators and the government. Section 3.1 defines the local economy for each of the project sites. Moreover, because village households and businesses routinely visited a nearby market town to purchase goods and services, market towns nearest to each park were included as part of the local economy for the study.

Direct Impacts

Protected areas attract tourists who pay park entry fees, stay at lodges, and spend money on game drives, walking safaris, scuba-diving, snorkeling and many other services provided either through lodges or other tourism facilities. Purchasing goods and services directly from local businesses and households is the only channel through which tourists contribute directly to the local economy. *A conventional impact analysis based on tourist spending would stop here, and thus capture only a fraction of protected area tourism's local economic impacts.*

Beyond tourism benefits, protected areas affect the economic behavior of people by influencing their use of natural resources, for example, through restrictions on hunting, fishing, or wood gathering. By regulating these activities, protected areas can have an adverse effect on the incomes of households that otherwise would rely on local resources, and these effects should be considered when describing the contributions of tourism to local economies.

Indirect Impacts Through Production Linkages

As tourism activities expand and resource extraction contracts, these activities' demand for intermediate inputs will change, producing a first round of indirect effects in the local economy through production linkages. For example, more tourists increase the demand for lodging and restaurant meals, creating greater demand for everything from ingredients (meat, fish, fruits, vegetables, etc.) to beverages, napkins, and workers. To the extent that lodges and tour operators hire workers locally, and purchase goods and services from local farms and businesses, this increase in demand will have positive 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 outcomes are realized when park authorities hire locals for security or park management jobs, or when communities receive a share of protected area-related income which stimulates local economic activity. When tourist services, protected area management activities, and those promoted by community programs expand, they create positive indirect impacts on the local economy. On the other hand, restrictions on natural resource use may reduce local economic stimuli. *An input-output (IO) analysis would stop here and capture only direct and indirect impacts through production linkages.*

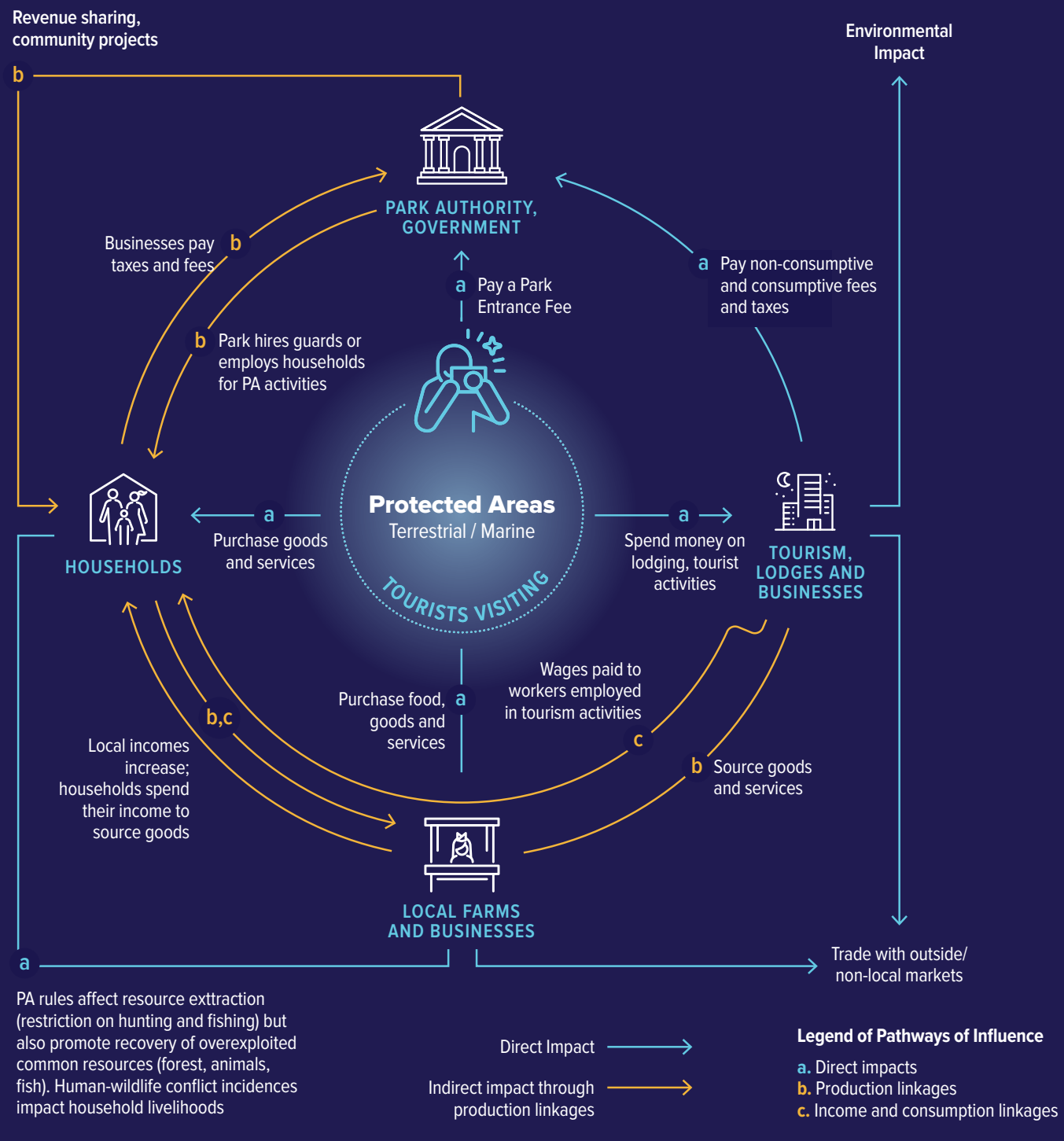
A critical issue when analyzing these production linkages is whether the local supply of goods and services can expand to meet the new demand. If not, growth in demand around protected areas may increase prices, reducing the real, or inflation-adjusted income gains from protected areas. The estimation of indirect impacts must take these potential inflationary effects into account.

Indirect Impacts Through Income and Consumption Linkages

In addition, production in local economies supported by tourism in protected areas generates wages and profits which lead to positive indirect effects by stimulating local spending. Earnings from locally owned tourist facilities and the businesses which supply them flow into local households who in turn feed this income into the local economy. However, where conservation efforts prevent harvesting of natural resources the indirect income effects of protected areas may be negative.

As local activities expand to meet growing household demands, new rounds of demand, income, and expenditure follow, elevating incomes, and demand in the local economy. Successive rounds of impacts become smaller and smaller, and the total (direct and indirect) effect of a growing tourism market eventually converges to an income multiplier, defined as the change in local household incomes per unit of fresh infusion of cash into the economy through tourist spending. *The general equilibrium (GE) model will capture all of these effects i.e., the direct impacts and both channels of indirect impacts.*

FIGURE 8 Economic Impact Pathways for Protected Areas



Source: Adapted from Taylor and Filipski 2014.

2.3. LEWIE MODEL

Quantifying the direct and indirect impacts of tourism in protected areas on local economies therefore requires an applied GE approach. For this global study, a GE method called "local economy-wide impact evaluation—LEWIE" was used across the four country case studies (Taylor and Filipski 2014). LEWIE uses simulation methods to estimate the direct and indirect (or "spillover") effects of tourism in protected areas on local economies (see Box 7); it also uses a structural approach that integrates models of actors (businesses and households) within a GE model of the local economy in which businesses include locally-owned businesses and those not owned by locals but typically employing some local workers and purchasing some locally supplied inputs.

The focus on the local economy illuminates the potential of protected areas to benefit local households, which are often unable to harvest natural resources, suffer human-wildlife conflict, and whose cooperation is critical to maintain protected areas by discouraging encroachment, poaching, illegal fishing, and other threats. Local economic development is also a goal in-and-of itself, and an additional reason to have a local focus.

LEWIE builds upon econometric methods of agricultural household modelling (e.g., Singh, Squire, and Strauss, 1986), and uses micro-survey data to model firms, households, and agricultural households within local economies that are both producers and consumers of food. These micro-models are "nested" within a GE model of the local economy, and draw from a long period of GE modeling in economics (Dixon and Jorgenson 2012). 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 production, income, and consumption/expenditure. In a typical model, households participate in activities such as crop and livestock production, resource harvesting (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 model and play two main roles in its construction. They provide initial values for all variables in the model (production inputs and outputs, household expenditures on goods and services). The data are also used for econometric estimates of model parameters for each household group and sector, together with standard errors for these estimates. The initial values and parameter estimate interface with the GAMS (Generalized Algebraic Modeling System) software used to program the LEWIE model.

The LEWIE model can be used to quantify impacts on a local economy. Because its parameters are econometric estimates, Monte Carlo methods are used to test significance and construct confidence intervals around the simulated impact results as shown by (Taylor and Filipski 2014). For this study, 500 iterations of the simulations for each park were conducted for each country case study; these simulations require judgements, based on the survey data, about where and how prices are determined (i.e., market closure, which is not known with certainty), and account for nonlinearities and local price effects. 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. First, the impact of *an additional tourist* on the local economy is simulated and provides an estimate of the income multiplier of an additional dollar of tourist spending. Secondly, the total impact is estimated by multiplying the per-tourist estimate by the number of tourists. There is no way to know what the counterfactual of these local economies would be, but this model provides the best approximation. A comparison between tourism impact and public investment in the park also provides an estimate of the rate of return on public investment.

Box 7. Estimating Economic Impacts of Protected Areas

Under the best of circumstances, it is difficult and costly to estimate spillover effects of public interventions using conventional experimental approaches (e.g., randomized control trials (RCTs) or econometric IV or "quasi-natural" experiments). Given the non-random location of protected areas, RCTs are not a feasible way to quantify their economic impacts. Because baseline data pre-dating protected areas are rare, neither are econometric methods that try to emulate experiments.

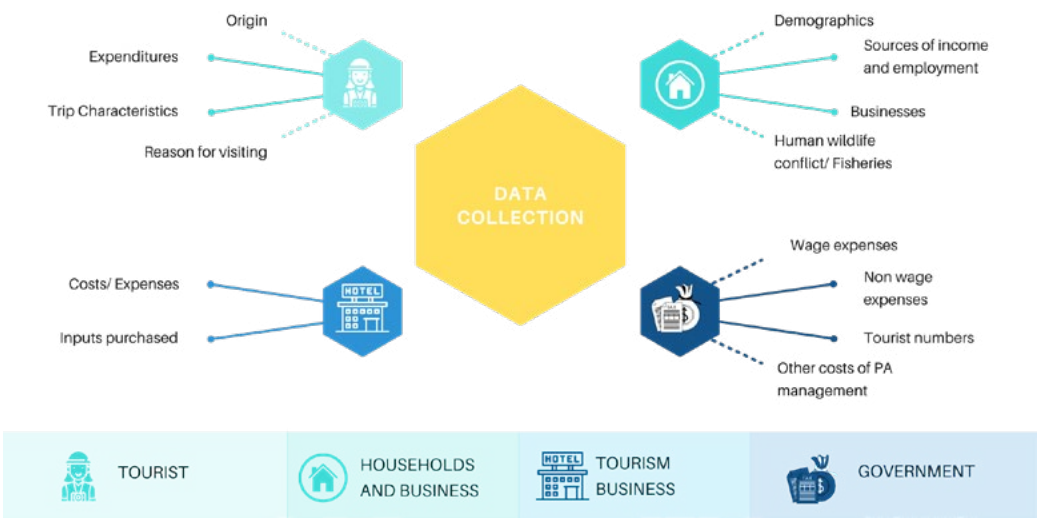
The model can also be used to understand the economic impacts of government policies and shocks to the economy – such as the economic fallout of the COVID-19 pandemic. Once the impact of nature-based tourism on local GDP has been estimated, it can be compared to government spending on the protected area to obtain the local income impact per dollar spent on the park. This exercise produces evidence for the argument that investing in protected areas delivers development outcomes via tourism and is similar to a partial cost-benefit analysis of government spending on protected areas. The difference between the model and conventional cost-benefit analysis is that LEWIE simulations capture the total benefits created by tourism, including indirect effects, whereas conventional cost-benefit analyses do not consider these indirect impacts (Taylor and Filipski 2014). Both the method used here, and conventional cost-benefit analyses face the same questions concerning attribution, in particular, whether and to what extent changes in government spending on the park will affect tourism and the economic and development benefits it creates.

2.4. DATA COLLECTION

To build the LEWIE model, data were gathered through surveys of tourists, lodges and resorts, local businesses, and local households. Information on production, income, and expenditure, and the locations of transactions (i.e., whether they are inside or outside the local economy) was gathered (see Figure 9). The household and local business survey data were entered on tablets using the Open Data Kit (ODK) platform for Android.

Tourist survey information was collected through questionnaires administered by the country (as in the case of Fiji's International Visitor Survey), by a tourism operator (in Zambia, Proflight Zambia made the questionnaire available to passengers on their flights), or at hotels in which tourists stayed (in the case of Nepal and Brazil). Tourist surveys in Nepal and Brazil were impacted by COVID-19, and required additional work to generate a representative sample.[6] For the ***Household and business survey***, communities in the area that defined the local economy were randomly selected from a master list. In each village, roughly 45–55 households were randomly selected using an every-nth household sampling strategy based on the size and geographical dispersion of the community. The household survey included a module to gather information about businesses, and this was administered to households with businesses.

FIGURE 9: Survey Data Characteristics and Elements



Source: World Bank

6 Nepal's study area had uncharacteristically low international tourist numbers, and so 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. Reduced tourism in Brazil's study area resulted in surveys which were inadequate to provide tourism expenditures. Expenditure shares were obtained from this sample, while per tourist expenditures were collected from secondary sources with larger and more representative samples (SEBRAE's Pesquisa de Perfil da Demanda Turistica – Costa das Baleias/BA, Brazil 2019 and The Ministry of Tourism International tourist demand Studies 2012–2018).

Businesses in villages and nearby market towns were surveyed to supplement the household business samples, and used the same questions. Lacking a master list, all small businesses evident in villages were approached (villages typically had only a few businesses), while in market towns an every-other-business approach was adopted. As in the household surveys, owner-operator participation in the surveys was voluntary. ***Tourism business surveys*** were collected by the survey team at lodges or using secondary sources. ***Government expenditure on protected areas***, including wage and non-wage expenditure needed to maintain and manage the protected areas was obtained from government offices.

Academic collaborations - in each of the countries, local students were trained to participate in the survey collection, and partnerships with local universities grounded the case studies in the socio-economic context of the country. In Nepal, the World Bank team collaborated with Kathmandu University, in Brazil, with the University of Rio de Janeiro, and in Fiji with the University of South Pacific. Box 8 elaborates on these collaborations.

Box 8. Building Capacity while doing Research

In each of the four country case studies, a team of local enumerators were trained to carry out the business and household surveys. This included a course on the LEWIE methodology and on how to conduct detailed household and business surveys with questionnaires programmed onto tablets using the ODK platform. These skills were field-tested, and enumerators were given certificates of completion of the LEWIE survey training course and fieldwork. Surveys were administered over two weeks around each protected area.

ZAMBIA

A team of 15 Zambian university students (8 men and 7 women) and recent graduates were trained to carry out the fieldwork for this study.

NEPAL

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.

Collaboration with Prof. Sagar Raj Sharma, Dean, School of Arts, Kathmandu University and Dr. Siddhartha Bajracharya, Executive Director of National Trust for Nature Conservation.

FIJI

A team of 15 Fijian students (7 men and 8 women) from the University of South Pacific were trained to carry out the fieldwork for this study.

Collaboration with Prof. Stuart Kininmonth, Senior Lecturer at the School of Marine Studies, University of South Pacific, Fiji.

BRAZIL

A team of 16 Brazilian students (11 men and 5 women) from the Federal University of Rio de Janeiro were trained to carry out the fieldwork for this study.

Collaboration with Prof. Carlos Eduardo Young, Associate Professor, National University of Rio de Janeiro.

3

Findings

3.1 COUNTRY CONTEXT AND SUMMARY STATISTICS

The following section provides a summary of the data from each of the four countries and an overview of protected areas and tourism in each country.

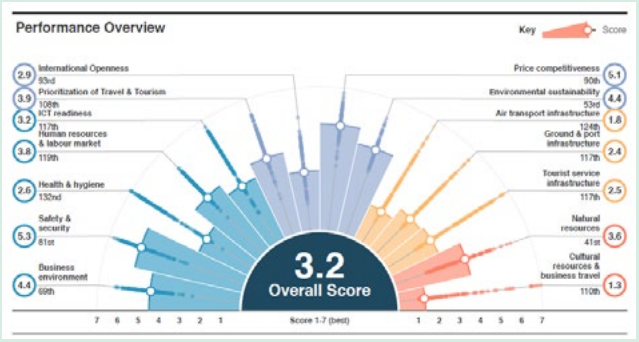
ZAMBIA

PROTECTED AREA

- Protected Areas cover ~40% of the country's land area
- 20 National Parks, 36 Game Management Areas (GMA) and 1 bird sanctuary
- GMAs are a category of protected areas that are mostly customarily owned lands designated as buffer zones between national parks and open areas. Human settlement is allowed in GMAs, as are other land uses such as agriculture, forestry, hunting, etc.
- *Threats:* Poor regulation, open access, population growth, demand for fuel and agricultural expansion are leading to habitat degradation
- Human-wildlife conflict reduces support for conservation
- Few visitors due to lack of funding for field staff, accommodation, park management and infrastructure

TOURISM

- 7% tourism contribution to GDP (WTTC 2019b)
- Zambia scored 3.2 out of a maximum of 7 and was ranked 113 out of 140 countries (WEF 2019a)
  - » **Strengths** – natural resources, price competitiveness
  - » **Weaknesses** – infrastructure, health and hygiene
- Zambia's protected area regulations mandate sharing of revenues with community resource boards in GMAs
- Protected areas typically contain a limited number of privately-run lodges that offer accommodation, food, viewing safaris (photo-tourism) within the park, but no human settlements. Villages and lodges are available within GMAs surrounding parks



STUDY SITES

1. Lower Zambezi National Park (NP) and adjacent GMAs

- Established in 1983, designated as IUCN Category II
- 6 lodges at Lower Zambezi inside the park
- Airstrip is located inside the park
- Chiawa GMA and the market town of Chirundu constitute the local economy for Lower Zambezi NP
- 11,161 visits were made to Lower Zambezi NP in 2018

2. South Luangwa National Park and adjacent GMAs

- Established in 1972, designated as IUCN Category II
- 21 lodges at South Luangwa inside the park
- The Mfuwe International Airport is the point of entry
- Upper and Lower Lupande GMA and the market town of Chipata constitute the local economy for South Luangwa NP
- 43,469 visits were made to South Luangwa NP in 2018

DATA SUMMARY

Data Collected:

- 800+ household and local business surveys
- 20+ lodges /tourism business surveys
- 226 tourist surveys

Poverty around both the parks is high:

- 56% of households surveyed in Lower Zambezi were poor
- 83% of households surveyed in South Luangwa were poor

Household income:

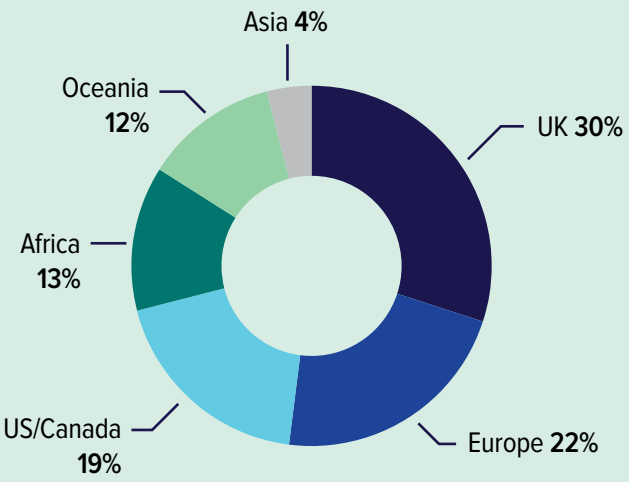
- The most common source of income for households is agriculture, followed by livestock rearing, and wage employment
- 40% of poor households in Lower Zambezi and 24% in South Luangwa had some form of wage employment
- Tourism-related jobs include visitor services (restaurant work, employment at hotels/lodges and tour agencies), maintenance (repairs) and craft

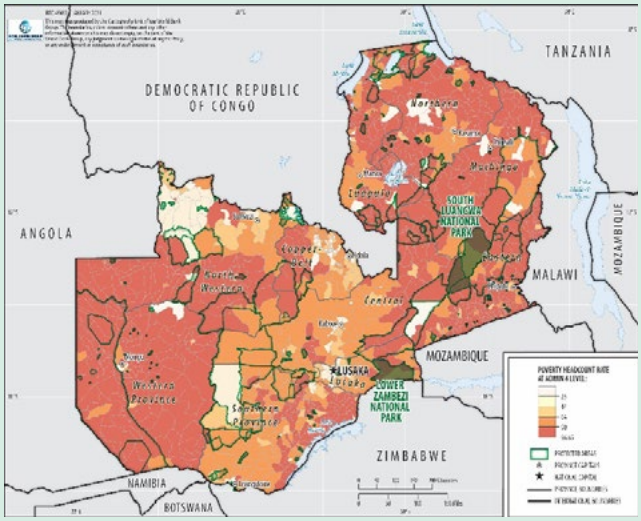
Local Business:

- 30% of households in Lower Zambezi and 25% in South Luangwa owned and operated some form of business
- In Lower Zambezi retail businesses make up almost 70% of household businesses
- In South Luangwa retail and services make up over 75% of household business types

Tourists by Origin:

- The largest share of tourists was from the United Kingdom, and Europe





Government revenues and expenditures:

- The Government of Zambia received ~US$1.1 million in visitor fees in 2018 between the two study sites
- The largest single source of revenue from protected areas was animal/trophy hunting fees – ~US$2.5 million
- Other consumptive and non-consumptive fees added US$1.6 million to the revenue generated by the park
- Government expenditure on the two parks was US$4.2 million (54% wages, 41% payments to community resource boards and 5% non-wage expenditures)
- Thus, these two protected areas generated a net of US$1.1 million

Tourist expenditures:

- Majority of the visitors came for tourist activities
- On average, tourists to Lower Zambezi spent US$2,904 per person and US$2,454 per person to visit South Luangwa. Average nights spent in Lower Zambezi was 3 and in South Luangwa 5
- The largest expenditure was on tourism packages that included lodging, meals, and park entry fees
- Hotels purchase ~80% of their daily inputs locally

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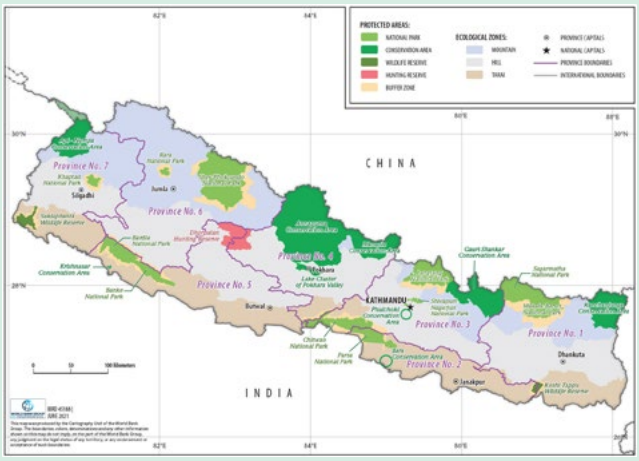
NEPAL

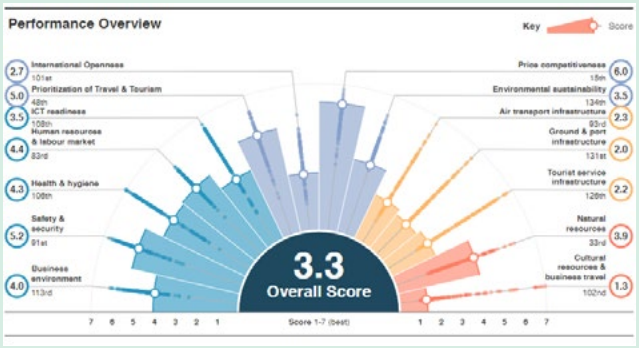
PROTECTED AREA

- Protected Areas cover ~23% of the country's land area
- 12 National Parks, 1 Wildlife Reserve, 6 Conservation Areas, 1 Hunting Reserve and 13 Buffer Zones
- *Threats:* Large infrastructure projects are encroaching on protected areas, land degradation, and insufficient funding and human resources for protected area management
- Land-use and human-wildlife conflict are barriers to community engagement for conservation
- Protected areas lack sufficient infrastructure such as visitor centers and trails, and face a growing challenge of solid waste management



TOURISM

- 6.7% tourism contribution to GDP (WTTC 2019b)
- Over 45% of tourists visit the country's protected areas
- Nepal scored 3.3 out of a maximum of 7 and was ranked 102 out of 140 countries (WEF 2019b)
  - » *Strengths* – natural resources, price competitiveness, safety & security and prioritization of tourism
  - » *Weaknesses* – infrastructure, international openness
- Regulations allow for 30–50% of park income to be channeled to local communities living in buffer zones
- Locally-owned and operated lodging is available in buffer zones but hotel/lodge concessions inside the park have recently been rescinded for environmental reasons



STUDY SITE

Chitwan National Park

- Declared a UNESCO World Heritage Site in 1984
- Designated as IUCN Category II
- The buffer zone includes 70 community forests tracts covering approximately 11,000 ha managed by local buffer zone user committees
- Chitwan National Park and three municipalities – Bharatpur, Khairahani and Ratnanagar constitute the local economy
- 211,888 visitors to Chitwan in 2019
- Communities are compensated for human-wildlife conflict

DATA SUMMARY

Data Collected:

- 596 household and local business surveys
- 8 lodges/tourism business surveys
- 67 tourist group surveys

Poverty:

- In Khairahani and Ratnanagar 3.8% of households surveyed were poor
- In Bharatpur 10.4% of households surveyed were poor

Household income:

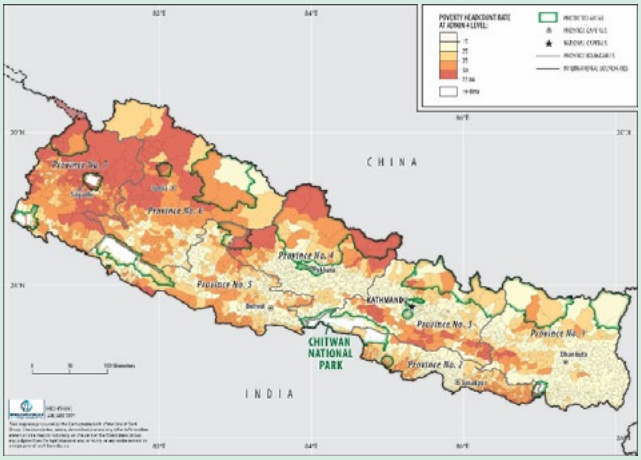
- Most households grow crops and roughly half own livestock
- 25% of non-poor households own and operate some form of business, compared with 7–8% of poor households
- Roughly half of all households have at least one wage worker
- Employment types include construction, agriculture, hotels, restaurants, and tour operation

Local Business:

- 25% of households owned and operated some form of business. Common business types included grocery shops, and hotels, restaurants and bars
- Construction related businesses were more prevalent in Bharatpur
- Most hotels (74%) purchase inputs locally

Government revenues and expenditures:

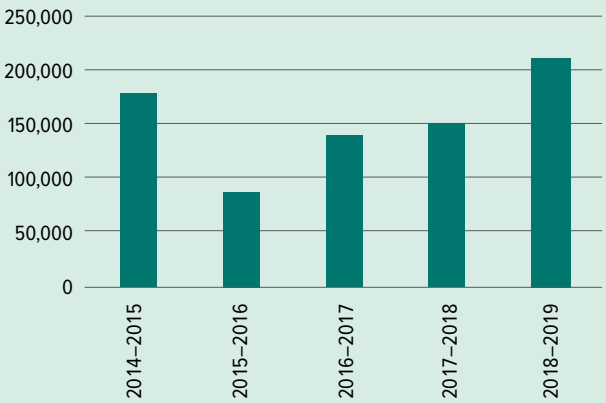
- The Government of Nepal received ~US$1.7 million in visitor fees from Chitwan National Park in 2018–2019
- Other revenues (concessions, fees) totaled US$784,000
- The total expenditures were US$5.7 million (58% were wage expenditures)
- The total expenditures incurred by the Government of Nepal are more than double the revenues from the park



Tourist expenditures:

- On average, a tourist spends US$31.6* per day in Chitwan NP, a third of which goes to accommodation and food at a hotel or lodge
- More than 70% of tourists participated in jeep safaris, followed by elephant safaris and the tharu dance and/or cultural programs

International Tourist Visits to Chitwan NP by Fiscal Year: Significant Tourism Rebound Since the 2015 Earthquake

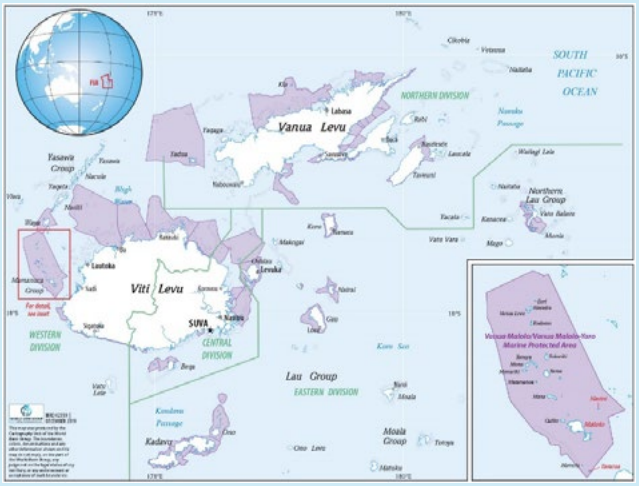


* COVID-19 disrupted data collection, and international tourists only represent 12 percent of the sample and were therefore under-represented. To correct for this, a more representative sample was constructed using known ratios of international to domestic tourists from the previous year (2019) to increase the weight (or importance) of foreign tourists in the sample.

FIJI

PROTECTED AREA

- The Government of Fiji set a goal to designate 30% of the country's inshore and offshore marine areas as protected areas by the end of 2020. However, only 1 percent has been officially designated as a marine protected area
- There is an informal network of MPAs known as *tabu*, which are established by indigenous communities as protected areas in customary fishing grounds (qoliqoli), and in which fishing rights are restricted
- *Tabu* areas may also be designated by chiefs, through agreements between communities and tourism operators, or through partnerships with the Fiji Locally Managed Marine Area (FLMMA) Network
- De-facto protected areas can be established when a foreshore lease is issued to a tourism enterprise. No fishing is subsequently permitted in the area
- Threats: Marine pollution, coastal development, over-fishing and over-harvesting of corals
- Hesitation of community groups as designation requires surrender of fishing rights
- Inadequate policy and lack of a Marine Park Authority limits ability to regulate the marine environment



TOURISM

- 34% tourism contribution to GDP (WTTC 2019b), largest source of foreign exchange
- In the 2018–19 fiscal year, 900,000 visitors spent an estimated US$904 million visiting the country
- LMMAs or *tabus* do not provide economic incentives for communities
- Formal benefit-sharing mechanisms are limited by regulations, mainly, the Surfing Area Decree (2010) that grants unrestricted access and use of any surfing area by any person and does not require the right-holder to be compensated

STUDY SITES

Three islands - Tavarua, Navini, and Malolo – part of the Mamanuca Islands

- All three sites are being considered for formal ("gazetted") MPA status, either fully (Tavarua, Navini) or in part (Malolo)
- These islands are a popular destination for tourists due to their pristine waters and coral reefs
- Informal marine conservation agreements* exist on all three islands
- The Mamanuca islands, and mainland - western coastal region in Nadroga-Navosa province, including its main city, Nadi - constitute the local economy
- These islands are connected to the main island of Viti Levu and in particular, to the economy in and around Nadi (also the location of the international airport)
- In 2019, close to 900,000 tourists visited Fiji, and of those, 9% visited the Mamanuca islands and 21% visited Nadi

* Formal or informal contractual arrangement to pursue ocean or coastal conservation goals through temporary or permanent no-fishing zones in exchange for voluntary commitment to deliver explicit (direct or indirect) economic incentives.

DATA SUMMARY

Data Collection

- 527 household and local business surveys
- 8 lodges/tourism business surveys (Tavarua and Navini islands have a single resort and Malolo has a few resorts*)
- 11,465 Tourist group surveys (IVS 2019**)

Poverty

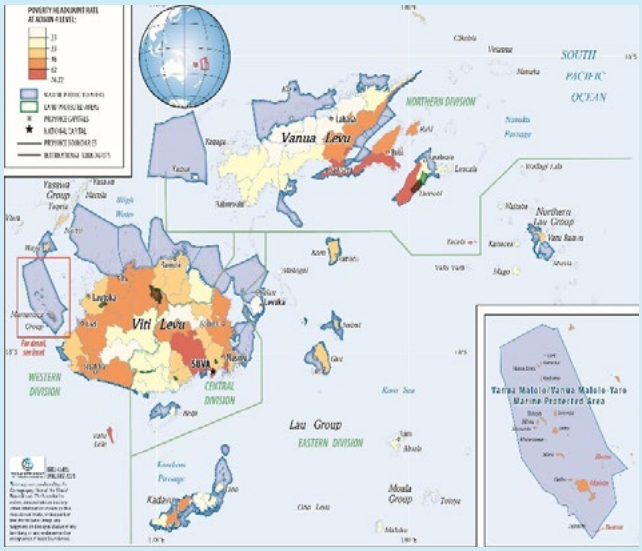
- 19% of households on the mainland (main island, Viti Levu) and 9.5% of households on islands were poor

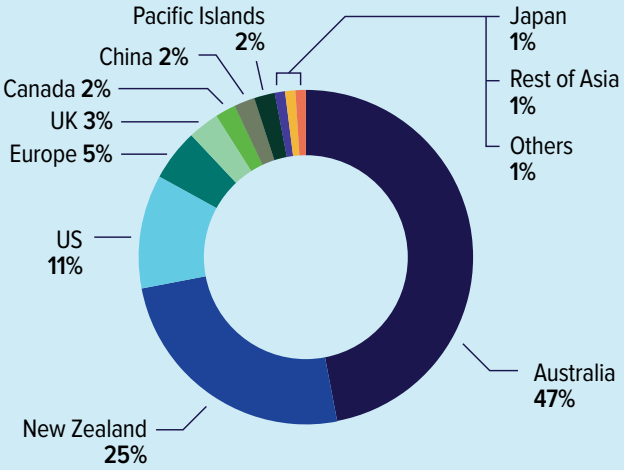
Household

- 82% of households had at least one wage worker
- A large percentage of households were engaged in agriculture, though the scale of farming was small and usually at a subsistence level

Tourists by origin

- Around 75% of tourists come from Australia and New Zealand





Local Business

- 24 to 36 percent of households own and operate some form of business
- Approximately 23% of hotel supply purchases are from outside the local economy of Nadroga-Navosa province and the Mamanucas

Tourist Expenditures

- The average tourist spend was US$167 per night
- 61% of mainland non-poor workers, 64% of mainland poor workers, and 85% of island workers were employed by hotels, restaurants, or tour operators

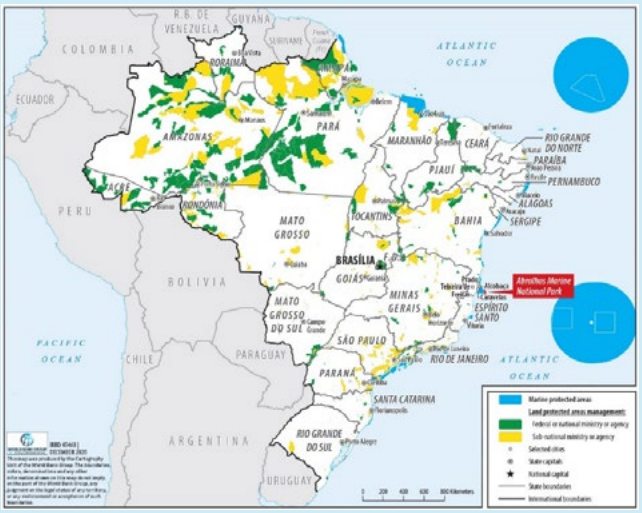
* Due to the small number of hotels in Nadi and the Mamanucas, all hotels nearby were contacted for the survey.

** The International Visitor Survey (IVS) is administered by the Ministry of Commerce, Trade, Tourism & Transport and is undertaken on a rolling basis.

BRAZIL

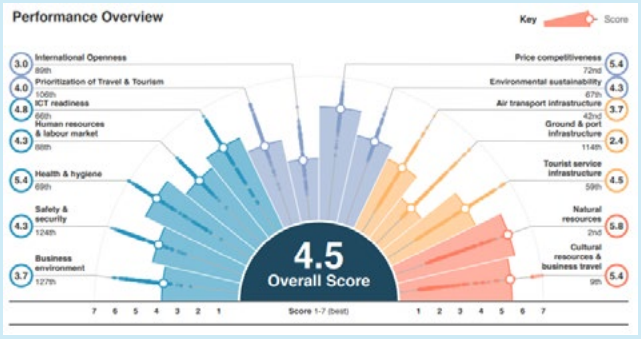
PROTECTED AREA

- Marine protected areas comprise 26.82% of marine and coastal areas
- 158 marine protected areas
- *Threats:* lack of regulations for the use of natural resources, conversion of natural areas for aquaculture and coastal development, pollution, and deterioration of aquatic habitat quality
- Insufficient finance for protected area management
- Overfishing, unsustainable fishing practices and lack of fisheries management are depleting fish stocks and jeopardizing local livelihoods dependent on the fisheries sector



TOURISM

- 10.3% tourism contribution to GDP (WTTC 2019b)
- In 2016, 16.8 million tourists visited 209 National (Federal) and State Parks
- While most tourists visit coastal areas for their beaches and cultural offerings, 12% of respondents cited “natural areas” for the purpose of their visit, which can in turn be attributed to the marine protected areas
- Brazil has no mechanisms to share park and concession revenues with local communities; however, the Ecological ICMS provides tax revenues to state and municipal governments
- Brazil scored 4.5 out of a maximum of 7 and was ranked 32 out of 140 countries (WEF 2019b)



- » ***Strengths*** – natural resources, cultural resources and price competitiveness
- » ***Weaknesses*** – transport infrastructure on land, international openness

STUDY SITES

Abrolhos Marine National Park

- Established in 1983, IUCN Category II
- Largest whale nursery in the South Atlantic
- Surrounding the marine national park is the Corumbau Marine Extractive Reserve (RESEX); local fisherfolk have exclusive fishing rights
- The marine area supports the livelihoods of an estimated 20,000 fisherfolk whose main source of income is from small-scale fishing
- Whale watching is the biggest attraction and tourism is seasonal as a result
- The Abrolhos region including the coastline (extending from Nova Viçosa in the south to the south-west of Caravelas and to Prado in the North) opposite Abrolhos Marine National Park constitutes the local economy
- 1.2 million tourists visited the Abrolhos region in 2019, most of whom were domestic tourists
- 8,044 tourists visited Abrolhos Marine National Park, less than 10% of the maximum allotted capacity. Some visitors to the coast are attracted by the pristine environment of the marine protected area
- The peak season for tourism in Abrolhos runs from July to January (whale watching season)

DATA SUMMARY

Data Collected

- 590 household and local business surveys
- 7 lodges/tourism business surveys
- 12 tourist group surveys*

Poverty

- 14.2% of households were poor

Household income

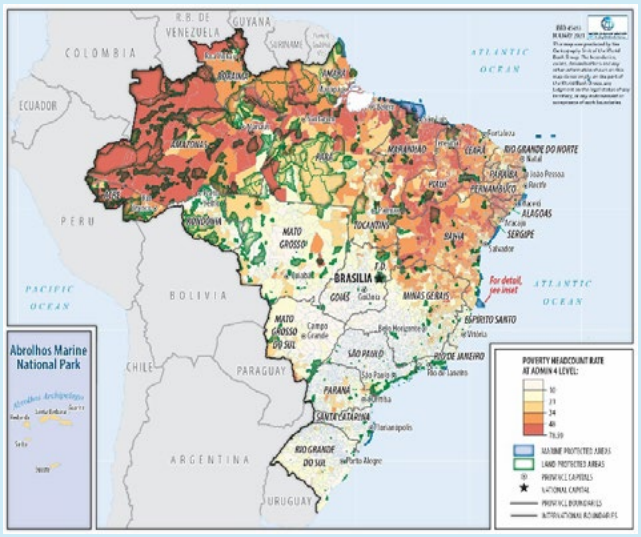
- Over 65% of households had at least one wage earner, while around 22–23% of households fished
- 53% of the poor were employed for more than 150 days in 2019, compared with 73% of the non-poor
- 29% of poor households grew crops compared to 22% of non-poor households

Local Business

- The majority of household businesses were vendors, grocery shops and other retail-type businesses that operated close to year-round
- Only 3% of the businesses surveyed were directly
- related to tourist activities

Government Expenditures

- Total government expenditure on the Abrolhos Marine National Park was US$455,606 (~70% of which was on wages)



Tourist Expenditures

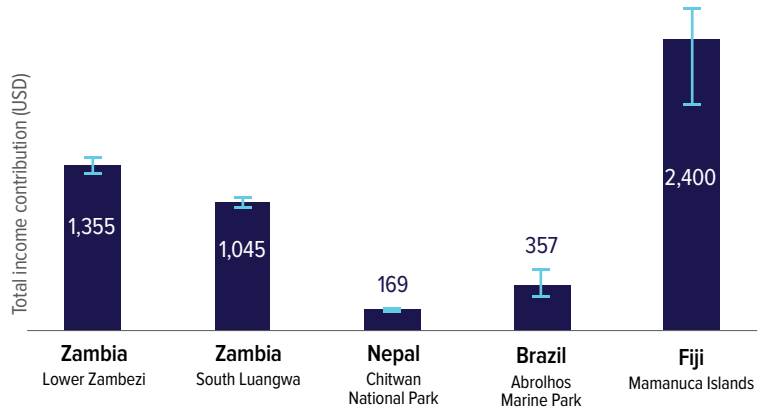
- The average tourist spent close to US$127 per day, mostly on hotels
- Tourism businesses spend 20% of their operating budgets purchasing inputs from outside the local economy

* COVID-19 travel restrictions made it difficult to collect tourist data. To mitigate this, we used data from "SEBRAE/BA (Brazilian Micro and Small Business Support Service), COMTUR and Bahia's Tourism secretary in 2019, who surveyed tourists in the Whale coast region and had a sample size of 501.

3.2 KEY FINDINGS FROM COUNTRY CASE STUDIES

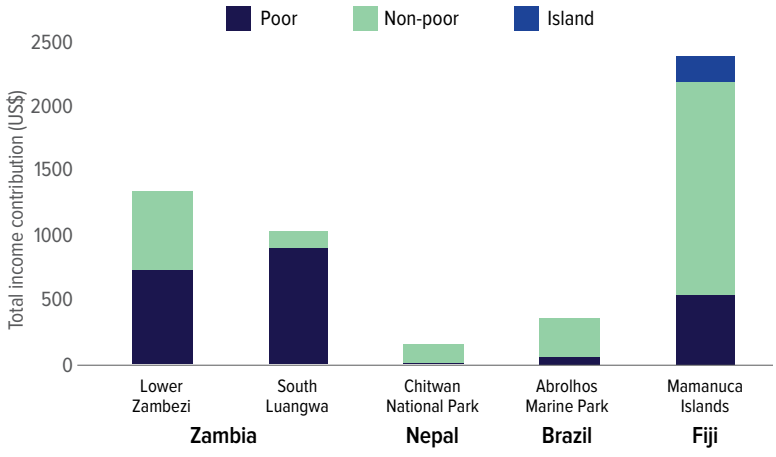
The LEWIE model was applied in each of the four country case studies. Findings synthesized here relate to: impacts of tourism in protected areas on the local economy, returns on government spending, impacts of conflicts and shocks, and effects of government policies.

FIGURE 10 Annual Contribution to Local Income Per Additional Tourist (total real income, 2019)[7]



Source: World Bank data

FIGURE 11 Disaggregation of Economic Impact by Household, 2019



Source: World Bank data

Effects of Protected Area Tourism on Local Economies

An additional tourist generates economic activity in the local economy by stimulating local demand for goods and services, either directly (as when tourists buy goods and services from local businesses and households) or indirectly (as when lodges pay wages to local households, or source goods from local businesses, who in turn spend this income on locally-supplied goods and services). Figure 10 summarizes the economic impact of an additional tourist on local incomes for the four country case studies. While an additional tourist generated a positive economic impact on the local economy at all sites, this impact was significantly higher in Zambia and Fiji, where per tourist spending is substantially higher than in Nepal and Brazil. Each additional tourist spends in the high hundreds or thousands of US dollars in Zambia and Fiji: US$745 in Lower Zambezi National Park, US$683 in South Luangwa National Park in Zambia, and US$1,311 in Nadroga-Navosa and Mamanucas in Fiji. In contrast, spending per tourist was just over US$200 in Brazil and under US$100 in Nepal. These differences indicate the type of tourism or tourists who visit protected areas in the four countries. Sites in Fiji and Zambia draw high-value, international tourists, the site in Nepal attracts low-value international and national tourists, and the Brazilian site sees mid-value domestic tourism.

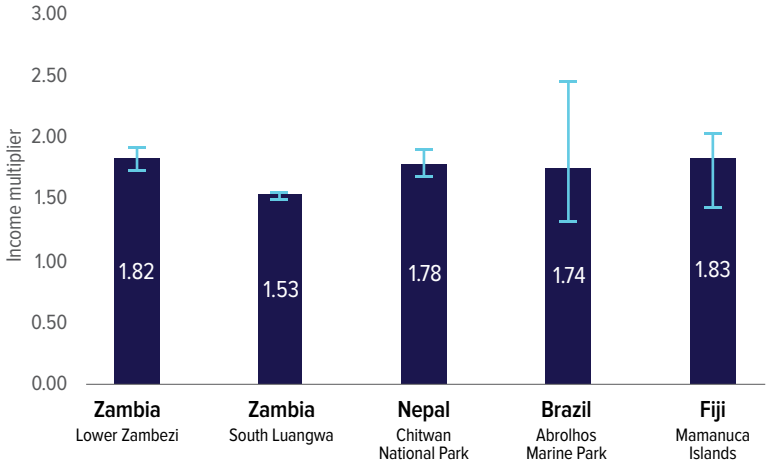
The economic impact of an additional tourist can be disaggregated by category of beneficiary households i.e., poor[8] and non-poor. In Zambia, poor residents, who are the majority of surveyed households (56% in Lower Zambezi and 83% in South Luangwa), receive a larger share of the economic impact of tourist spending on the local economy than non-poor residents (see Figure 11). The opposite is true in Nepal, Brazil, and Fiji, where mainland non-poor residents receive a larger share of these economic impacts than poor residents on the mainland and island residents.[9] In each of these cases, only 20% of surveyed households were poor, explaining in part the contrast with Zambia's

7 Income figures presented in these findings are inflation-adjusted. Bars represent 95% confidence interval.

8 Poverty headcount calculated as the proportion of households with under $1.90/person/day (ppp adjusted using ppp exchange rate for all countries except Brazil where, because of the small sample size for poor households, the definition of poverty was altered to those living under US$5.8/person/day.

9 Due to the small sample size for island households, these households are not disaggregated into poor and non-poor categories for the LEWIE model in Fiji.

FIGURE 12 Annual Real Inflation-Adjusted Income Multipliers, 2019



Error bars represent 95% confidence intervals

Source: World Bank data

BOX 9. Strengthening the Economic Case by Comparing our Multiplier Results to Green Stimulus Multipliers

According to the IMF's latest working paper, the cumulative multipliers for ecosystem conservation or green land use-related spending are greater than those for conservation-incompatible land use after the first year in developing countries. For every dollar spent on conservation, there is a return of almost seven dollars in the medium term (5 years) (Batini et al. 2021). These high multipliers are a result of (i) spending programs mostly financed by donors who supplement domestic spending, (ii) strong labor intensity in the conservation sector, and (iii) increased revenues in agriculture because the scarcity of available land following the expansion of areas under protection pushes up the prices paid to producers for their goods and motivates productivity improvement. In contrast, the IMF estimates that multipliers of spending on industrial agriculture are less than one.

Similarly, Waldron et al. (2020) modeled the global economic effects of expanding the global protected area target to 30 percent and noted that revenues from protected areas exceeded their maintenance costs by a factor of five, a multiplier close to the IMF estimates. Their results suggest that protected area revenues are likely to grow faster (4–5 percent per year) than that from agriculture (less than 1 percent).

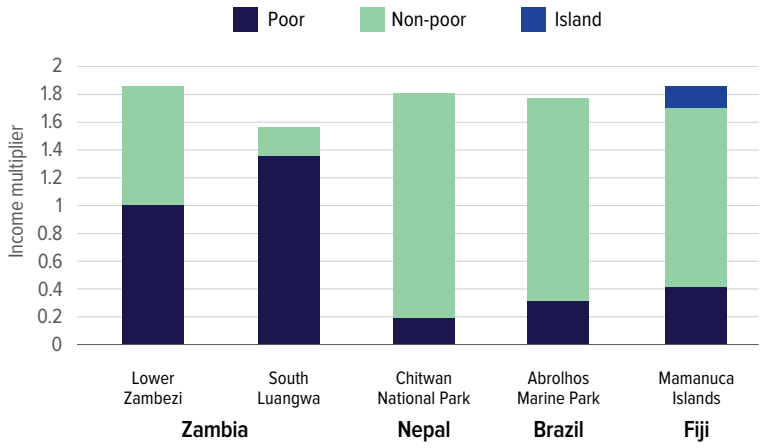
case. As detailed in the country case studies, in Zambia and Brazil, the largest impact is on retail activities of mainly small family-owned enterprises, which is where households around parks spend the largest share of their incomes. In Nepal, park revenue is shared with a buffer zone user committee as part of benefit sharing arrangements and contributes around US$4.50 per tourist to household incomes. In Fiji, where mainland non-poor households reap most of the economic benefits from tourism, over 60 percent of both poor and non-poor mainland workers and 85 percent of island workers were employed by hotels, hostels, restaurants, or tour operator businesses, indicating that wages and/or indirect linkages of tourism are greater for non-poor residents.

Another metric that can be used to capture the impact of tourists on local economies and communities is the income multiplier. As local activities grow to meet household demands, new rounds of increased demand, income, and household expenditures follow, creating additional increases in income and demand in the local economy.

Figure 12 shows the income multipliers for each of the case studies. In all cases, the multiplier is greater than one, signaling that local market linkages are strong, and that each additional dollar spent by a tourist increases local incomes by more than a dollar. A local income multiplier of less than one would indicate that tourist demand is met mainly by purchases from other parts of the country or from abroad, causing income to "leak out" from the local economy to where purchases occur or are processed. This does not appear to be the case in any of the four case studies, although it is likely that some leakage occurs. Multipliers across the four studies are consistent, suggesting that an active protected area tourism sector provides similar income gains to local households across a variety of contexts, despite variations in per tourist spending and number of visitors. These multiplier results are similar to those found in studies of other sectors (see Box 9).

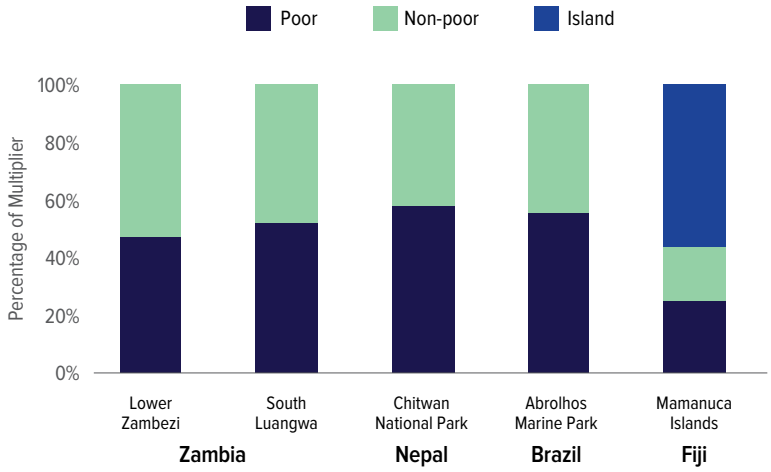
As with the contribution to total income, the LEWIE methodology can also be used to examine how an income multiplier is distributed among households both poor and non-poor, and near-to and far-from a protected area. In Zambia, poor households benefited more - each dollar spent raised their incomes by US$0.99 in Lower Zambezi National Park and US$1.34 in South Luangwa National Park - compared to non-poor households - each dollar spent raised their incomes by US$0.83 and US$0.19 in Lower Zambezi and South Luangwa National Parks, respectively (see Figure 13). In communities near Nepal's Chitwan National Park, on the other hand, the share of the income multiplier accruing to non-poor households was much higher than that for poor households: of the total income multiplier of 1.78, non-poor households received 1.6 while poor households received 0.18. In Brazil as well, most benefits accrue to non-poor households which are better able to increase production to meet growing demands generated by tourism, and which are a larger population than poor households. For each dollar spent by a tourist in the Abrolhos region, US$1.44 is generated for non-poor households, while poor households receive US$0.30.

FIGURE 13 Annual Income Multiplier Share by Household Type, 2019



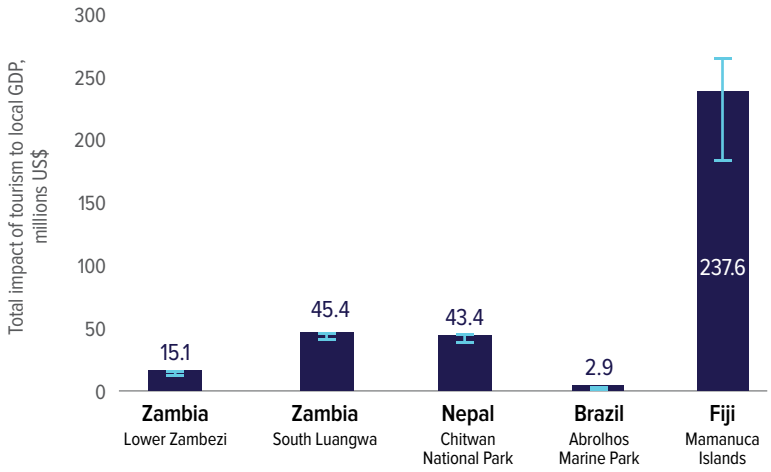
Source: World Bank data

FIGURE 14 Annual Distribution of Multipliers Across Poor and Non-poor Communities, 2019



Source: World Bank data

FIGURE 15 Annual Impact of Protected Area Tourism on Local Incomes, 2019



Error bars represent 95% confidence intervals

Source: World Bank data

Finally, in Fiji, non-poor households tend to benefit more than poor ones because their businesses profit from the ripple effects of tourist spending.

Despite the larger multiplier shares of non-poor households in most cases, tourism appears to benefit poor residents more than non-poor residents in all but one case. Normalizing multiplier shares by the populations of poor and non-poor residents (i.e., dividing the share of the multiplier by the share of population; see Figure 14) shows that the multiplier share *per resident* is actually higher for poor residents than for non-poor, in all cases except around Lower Zambezi National Park in Zambia.

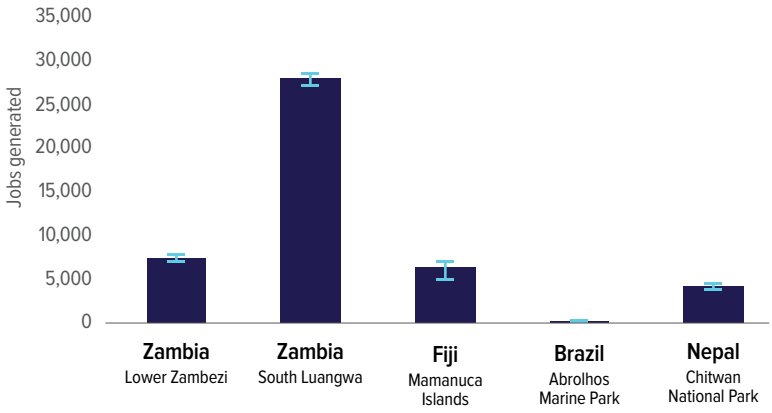
In summary, tourist spending generates income multipliers for households in the local economy, benefiting households directly involved in the tourism sector and those not, and benefitting poor and non-poor households. Households benefit directly and indirectly through production and income linkages-when tourism operators hire local people and buy local goods, and when households spend wages and businesses spend profits earned through the tourism sector.

TOTAL IMPACT OF TOURISM ON THE LOCAL ECONOMY

The total impact of protected area tourism on local incomes can be estimated by multiplying the impact per tourist by the number of tourists who visit the protected area. Figure 15 summarizes the total impact of tourism in protected area sites for the four country case studies. In Brazil, some tourism in the surrounding Whale Coast region can be attributed to the ecological spillover effects of the Abrolhos Marine Park, such as healthier fish stocks and habitats, but quantifying these effects requires information on regional economics beyond the scope of this study. This accounts for the relatively small total impact in Brazil.

The total impact of protected area tourism on the local economy is largest in Fiji because of the high amount of tourist spending per day and the large volume of tourists. The Zambian parks also see high tourist spending on guided safaris and hunting, but these parks have relatively few tourists due to a lack of connectivity. Nepal, on the other hand, generates large revenues despite low tourist spending, due to high tourist numbers. While the model generates significant stimuli for the local economy around Nepal's Chitwan National Park, these comes with trade-offs—if large numbers of tourists degrade

FIGURE 16 Jobs Generated Annually by Protected Area Tourism, 2019



Error bars represent 95% confidence intervals
Source: World Bank data

the natural area that is attracting them, fewer tourists may visit in the future. As noted, the Abrolhos Marine Park may benefit tourism in surrounding coastal areas by supporting species and maintaining a healthy ecosystem, even if tourists do not visit the park itself. Furthermore, the 8,044 annual visits to Abrolhos Marine Park are less than 10 percent of the maximum allowed capacity, which is 225 visitors per day. If the Park operated at full capacity during peak season, then the economic impact of tourism would increase to US$11.9 million, almost four times the current estimated impact.

Tourism generates jobs directly through tourism activities, and indirectly by stimulating the local economy (see Figure 16). Employment effects are calculated by taking the impact on labor income from the LEWIE model simulations and dividing it by the median annual wage to obtain the change in year-round equivalent jobs. This covers tourism-related jobs such as hotel employees, tour operators, and restaurant workers, as well as those employed as a result of increased demand for goods and services brought on by tourism in sectors such as retail, services, and in some instances agriculture, livestock, and fishing.

Beyond the total number of jobs, the share of employment supported by tourism in protected areas is significant. In Zambia, tourism in protected areas generated jobs for 14 percent and 30 percent of working age populations around the Lower Zambezi and South Luangwa Parks respectively. In Nepal, tourism-related jobs around Chitwan National Park are held by 3 percent of the working age population, while in Brazil's coastal region - the Whale coast, a total of 46,800 jobs (300 of these jobs can be attributed to the Abrolhos Marine Park directly) represents 12 percent of the local population. Tourism in Fiji's Mamanuca islands created 8,304 jobs (through direct and indirect channels), employing 13 percent of the local population in Nadroga-Navosa and the Mamanucas.

Return on Government Spending

A key motivation for this study is to assess whether public investment in protected areas is good for development. Does the benefit of the investment outweigh the costs? This question is assessed through financial analysis, where data permit,[10] and economic analysis, for the three case studies.

The Zambia and Nepal case studies provide detailed information on the revenues and expenditures of government departments/agencies in charge of protected area management. In Zambia, government revenues from tourism in protected areas (park visitor fees, other fees, and concessions) exceed the value of current investments in the park (see Table 4). Thus, these protected areas are a source of[12] revenue for the government and not a financial sink and refute the assumption that protected areas are not 'self-financing'. Surplus revenue from protected areas that attract tourists can be used to subsidize investments in other parts of the protected area network. On the other hand, in Nepal's Chitwan National Park, government revenues from visitor fees and concessions were significantly less than expenditure on park protection and maintenance, which also included expenses incurred by the army.

However, simply comparing revenues with expenditures gives an incomplete picture of the effects of protected areas on local economies, for which it is necessary to compare park costs with their broader local economic impacts. The return on investments are presented in Figure 17, and were obtained by dividing these total economic impacts by the sum of wage and non-wage expenditures by governments on the parks.

In all cases in which this could be assessed, the rate of return on government spending is significantly greater than one, making the protected area a valuable economic asset. These results indicate that public investment in protected areas not only helps to conserve biodiversity, but also helps to make protected areas more attractive to tourists – for example, by protecting wildlife and habitats, preserving the natural and cultural integrity of the landscape and oceanscape, and/or by providing well-maintained recreational services such as trails. When tourists visit protected areas, they not only spend their money on park entry fees, but also on hotels, meals, transport, souvenirs and other services. These expenditures benefit both those in the tourism sector, and beyond, as tourism service providers hire labor and source goods and services from the local economy, triggering a chain of benefits for local businesses and households. It is the sum of these direct and indirect benefit flows that lead to high economic returns on government investments in protected areas. Thus, investments in protected areas are good for biodiversity conservation, good for local economic development, and provide favorable returns to governments.

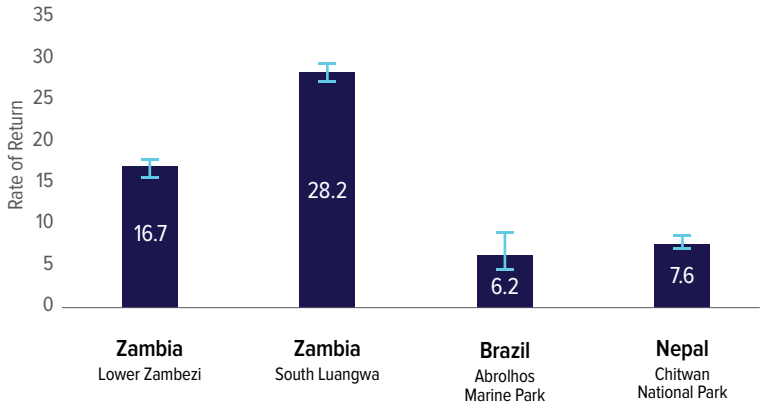
In summary, the analysis flags the importance of protected area tourism's broad, and indirect impacts, which ripple beyond the tourism sector and into local economies, offering economic stimuli and development benefits which make for favorable returns on government investments in protected areas. These far-reaching knock-on effects offset leakage and make a

TABLE 4 Annual Government Revenues and Expenditures, 2018/2019[11]
US$ Amounts

	Zambia	Nepal
Revenue	5,373,327	2,583,041
Expenditure	4,242,227	5,726,025
Surplus	1,131,100	-3,142,984

Source: Government data
Note: Data for Fiji and Brazil unavailable

FIGURE 17 Annual Estimated Rate of Return on Government Spending, 2018/2019[12]

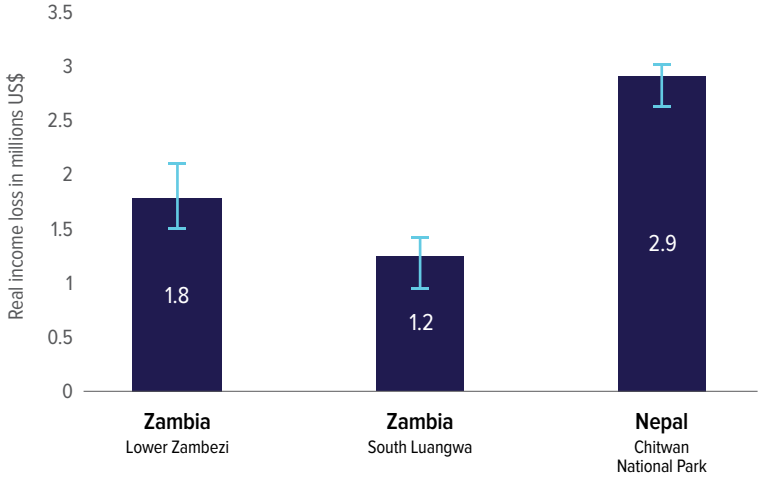


Error bars represent 95% confidence intervals
Source: World Bank data

10 Note: Government expenditure data were not available for the Fiji case study, and a rate of return could not be calculated.
11 Figures for Zambia are for 2018, while figures for Nepal are June 2018–June 2019.
12 Government expenditures for Zambia are for 2018, June 2018–June 2019 for Nepal, and 2019 for Brazil.

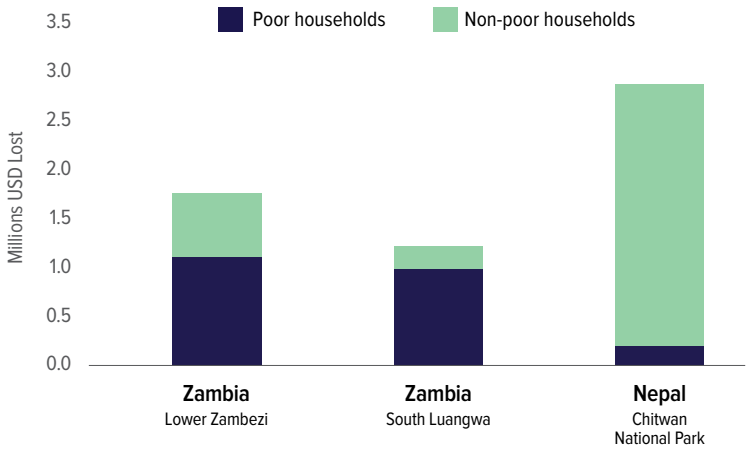
compelling case for investment in protected areas as potentially self-financing sources of revenue which can help governments to pursue sustainable development. The need to consider both direct and indirect mechanisms to assess the economic impact of tourism in protected areas on local economies suggests that studies which look only at tourism expenditures to estimate impacts will underestimate the impacts on the local economy, and over emphasize the leakage from tourism activities outside the local economy.

FIGURE 18 Annual Income Losses from Human-Wildlife Conflict in Protected Areas, 2019



Error bars represent 95% confidence intervals
Source: World Bank data

FIGURE 19 Annual Estimated Loss of Household Earnings from Human-Wildlife Conflict by Location and Income, 2019



Source: World Bank data

Impact of Conflicts and Shocks

Besides estimating the economic impacts of tourism on local economies, the LEWIE model can be used to simulate the local impacts of economic shocks. The categories of shocks assessed are those caused by human-wildlife conflict, and by the economic fall-out of the COVID-19 pandemic.

HUMAN-WILDLIFE CONFLICT

Just as the benefits of protected area tourism can incentivize communities to support conservation, the costs of human-wildlife conflict may reverse these gains.

Living near terrestrial protected areas can lead to human-wildlife conflict, as seen in Zambia and Nepal. Such conflict often entails crop loss and livestock predation, and animals may also harm or kill humans. The study estimates the negative impacts of human-wildlife conflict on a local economy as household income forgone due to crop losses. Wildlife incursions onto farms caused crop losses of almost 14 percent at Lower Zambezi National Park, 11 percent at South Luangwa National Park in Zambia, and 9 percent around Chitwan National Park in Nepal. The LEWIE model uses harvest data reported at the time of the survey, and the base model therefore already reflects losses. The cost of human-wildlife conflict is therefore estimated as a counterfactual: what would the income of households be if there was no human wildlife conflict.

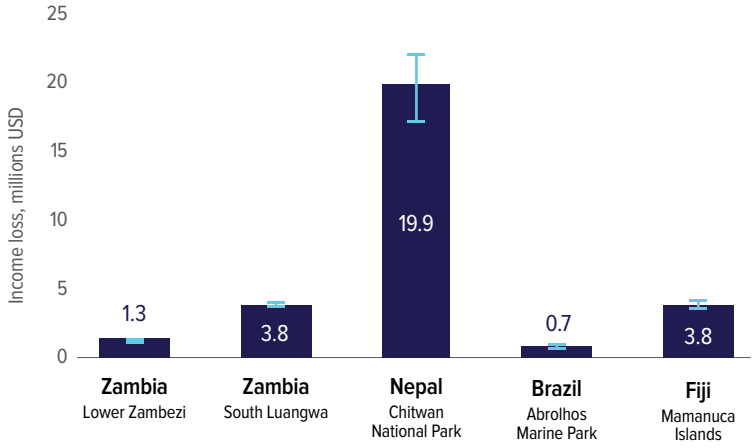
Crop losses can have major impacts on households and send negative ripple effects through local economies. Figure 18 presents these impacts and shows that animals caused millions of dollars in lost income, signaling a critical issue for households living near terrestrial protected areas.

While households suffered significant losses in the three study contexts, the distribution of effects varies by country, and between poor and non-poor households (see Figure 19). In Nepal, non-poor households, which are in the majority, produce more crops and thus suffer most losses; while in Zambia, most households are poor, largely reliant on subsistence farming, and thus suffer the greatest losses. This distribution of impacts highlights the need for equitable approaches to avoid, mitigate and compensate losses; households most vulnerable to crop destruction may require compensation, especially if they are not beneficiaries of protected area tourism.

The creation of marine protected areas may also cause income loss in the short run by prohibiting or limiting fishing. In Fiji, household survey data indicate an average, annual per-household catch value of approximately FJ$13,000; and 57.9 percent of Nadroga-Navosa's 58,931 inhabitants (2017 Population and Housing Census, *Fiji Bureau of Statistics*) are fisherfolk, giving a fishing income of about FJ$ 89 million (US$ 39 million) annually. However, when compared with the value of Marine Protected Area tourism in the Mananucas, these potential losses in fishing income are small; nonetheless, they flag the question of how tourism benefits are shared, and how the losses suffered by fisherfolk will be compensated. Similar comparisons are needed for Brazil but are unavailable due to lack of data.

Additionally, while the creation of marine protected areas may reduce household incomes from fishing in the short term, environmental protections may offset these losses, as no-fish zones create spillovers into adjacent fishing grounds, accelerating the recovery of stocks and increasing catch sizes. This effect has been recorded in Fiji, where a marine protected area designated in 2014 seeded adjacent areas and resulted in larger and more consistent catches by 2019, leading to increased incomes and support for conservation. Estimation of the medium-term impact of the protected area requires a bio-LEWIE model and is beyond the scope of this study.

FIGURE 20 Monthly Income Loss from No Tourism, 2019



Error bars represent 95% confidence intervals

Source: World Bank data

COVID-19 IMPACT ON TOURISM

Just as tourism can boost incomes within and beyond the sector, a loss of tourism not only impacts employment in tourist facilities, but also in businesses supplying their goods and services. And 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 caused substantial losses in tourism and tourism income, and the LEWIE model can be used to simulate the impact of a complete loss of tourism for one month on the local economies around protected areas (see Figure 20). These losses are felt most strongly by households that normally benefit the most from tourism - around the Zambian parks, poor households have suffered the greatest losses, while around those in Nepal, Fiji, and Brazil, non-poor households have lost the most tourist-related income.

Impact of Government Policies

Finally, the LEWIE model can be used to simulate the impact of government policies on a local economy. Two policies were considered – hiring of locals for protected area management and increased local sourcing of goods by the tourism sector – and the results of these policy simulations are presented below.

WHEN LOCALS ARE HIRED FOR PROTECTED AREA MANAGEMENT

Jobs are also created when governments hire conservation staff from local communities. In Chitwan National Park, hiring a park guard generates an increase in local income of US$6,535 (see Table 5), a substantial figure when compared to the cost - US$2,442 - of employing the guard. Thus, hiring the guard produces indirect benefits, as each additional dollar spent by the government on park wages creates a local multiplier of US$2.67. These park employment multipliers are larger than tourist spending multipliers, because wages paid to locally hired park personnel go directly to local households, whereas a fraction of tourist spending does.

In Zambia, where the Department of National Parks and Wildlife is working at very low staff numbers (25 percent of its capacity), hiring a park guard increases the park's impacts on the local economy to the amount of US$1,479 at Lower Zambezi and US$1,038 at South Luangwa. Thus, hiring staff locally can promote conservation, improve local incomes, and generate social benefits through community representation in park management. Similarly,

TABLE 5 Annual Effect of Government Hiring a Local Park Ranger, 2019
US$ amounts

	Zambia		Nepal	Brazil
Changes in local economy incomes	*Lower Zambezi*	*South Luangwa*	*Chitwan National Park*	*Abrolhos Marine National Park*
Real Income	1,479	1,038	6,799	24,045
Poor households	911	668	912	9,875
Non-poor households	567	370	5,887	14,170
Cost to hire additional worker	978	669	2,442	8,963

Source: World Bank data

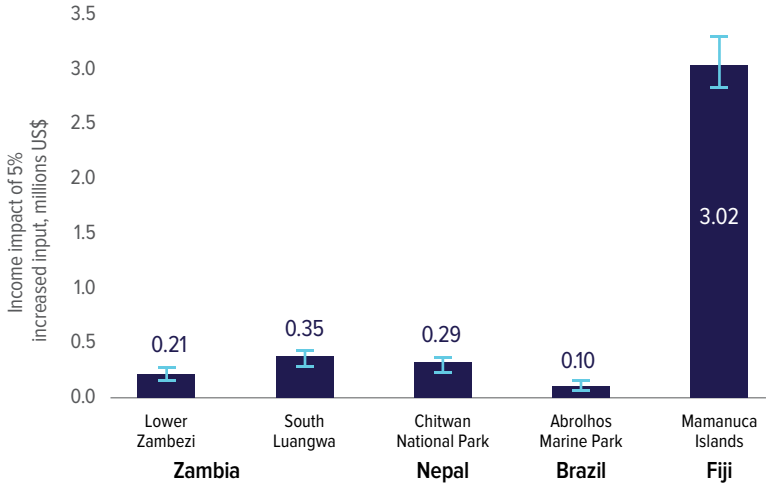
Note: Government expenditures were not available for Fiji.

TABLE 6 Annual Impacts of 5% Increase in Local Purchasing for Businesses, 2019
US$ amounts

	Zambia		Nepal	Brazil	Fiji
	Lower Zambezi	*South Luangwa*	*Chitwan National Park*	*Abrolhos Marine National Park*	*Mamanuca Islands*
Total Real Income	**207,573**	**352,894**	**3,017,214**	**102,045**	**291,374**
Poor	10,671	260,175	29,395	13,345	55,500
Non-poor	196,901	92,720	2,987,818	88,700	211,587
Island	n/a	n/a	n/a	n/a	24,287

Source: World Bank data

FIGURE 21: Annual Impacts of 5% Increase in Local Purchasing for Businesses, 2019



Source: World Bank data

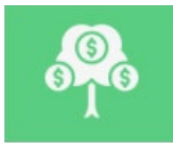
in Brazil, as shown in Table 5: Annual Effect of Government Hiring a Local Laborer, 2019, the economic impact of an additional hire from the local economy outweighs the cost, with an income multiplier of 2.7.

SOURCING GOODS LOCALLY

While the income multiplier for visitor spending in protected areas is significant, leakages occur when goods and services are sourced from outside the local economy.

In Zambia, for instance, hotels on average purchase 16 percent of their daily inputs (in value terms) from non-local sources. While leakages are low, a simulated five percent increase in local sourcing boosts local incomes by US$0.21 million in Lower Zambezi and US$0.35 million in South Luangwa (see Table 6). The largest share of benefits in Lower Zambezi goes to non-poor households in the GMA (US$0.14 million). In Nepal, hotels purchase 26 percent of their inputs from outside the local economy, and a five percent increase in local purchasing raises local incomes by US$3.0 million (see Figure 21). As in Zambia, most of these benefits accrue to non-poor households. In Fiji, the five percent increase in local purchasing boosts local incomes by US$291,374, with most benefits accruing to non-poor households on the mainland (US$ 211,587); the incomes of poor households on the mainland and of island residents increase by US$55,500 and US$24,287, respectively. Finally, in Brazil, a 5 percent increase in local purchasing boosts local incomes by US$102,045; once again, most benefits accrue to non-poor households, which increase their incomes by US$88,700 compared to US$13,345 for poor households. In all four countries, poor households benefit less than non-poor ones due to their lesser capacity to take advantage of economic opportunities.

To conclude, the findings from the four country case studies can be summarized in the following key takeaways:



Protected areas are natural assets that provide substantial economic benefits, and support significant numbers of jobs

Benefits of tourism in protected areas go beyond tourism businesses and households directly involved in the sector

- Impacts are differentiated by poor and non-poor

There are however winner and losers, and policies are required to compensate households which lose income, and to equitably distribute benefits to local communities

Government programs, such as hiring locals to work in protected areas, and locally sourcing goods and services, can strengthen tourism's economic impacts

Investing in protected areas is good economics-

- In some cases, protected areas are self-financing and not a resource sink
- Economic impacts of protected area tourism outweigh its costs in all four countries

The COVID-19 pandemic has had a significant impact on the tourism sector, and multiple effects on economies

3.3 STUDY LIMITATIONS

While estimations of direct/indirect tourism impacts provide a better picture of the sector's links to surrounding communities, such estimates remain conservative, and may not reflect the full effects of protected area investment. Critical to this point, the LEWIE model is not dynamic, and thus, varying factors like fishery stocks, which are critical to marine protected areas, are not considered. Scaling the LEWIE methodology to fit additional needs can provide further evidence of the benefits of investment in protected areas. In marine protected areas, this includes developing a "bio-LEWIE" model which incorporates data on fishery stocks, the sustainability of their harvest, and the supply and demand of sea products to the local tourist industry. Unmeasured benefits, such as the maintenance and supply of ecosystem services are increasingly revealed to have significant economic values.

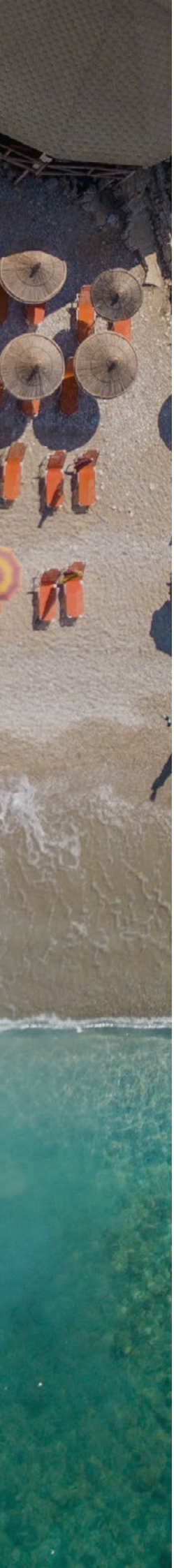
It is also possible that this study understates the full economic impact of tourism around parks as only benefits to the local economy have been estimated. Tourists who visit protected areas also spend money outside the local economy, and tourism businesses are likely to source goods and services from outside the local economy too. Both these channels add to returns on government spending and to the nation's economy/GDP. Also, the study does not consider the costs of adverse environmental impacts or externalities associated with tourists; however, it recognizes that tourists can degrade environmental assets. Data limitations detailed in the report have meant that not all economic linkages can be captured; as an example, impacts on the local economy from the expenditures made by protected area managers were not considered.

Attribution - the link between protected area status and the desire of tourists to visit - is another challenge for this kind of study. In the case of terrestrial protected areas, the reasons for visits are usually clear, as these areas are far-removed from competing attractions and are visited for reasons specific to the site. In marine protected areas, however, these motivations are less direct because visitors are drawn to coastal areas irrespective of the conservation status of marine environments. Because of this, the evidence linking protected area status with tourist numbers is not clear, and site-specific data are needed to cast light on this issue.

Finally, these findings are specific to the protected areas chosen for this study and may not apply to other protected areas. As countries consider the results of this study, they should assess comparability of their protected areas with our case studies before adopting recommendations. Scaling this methodology to cover more parks and more contexts in future studies can help to overcome this issue.

4

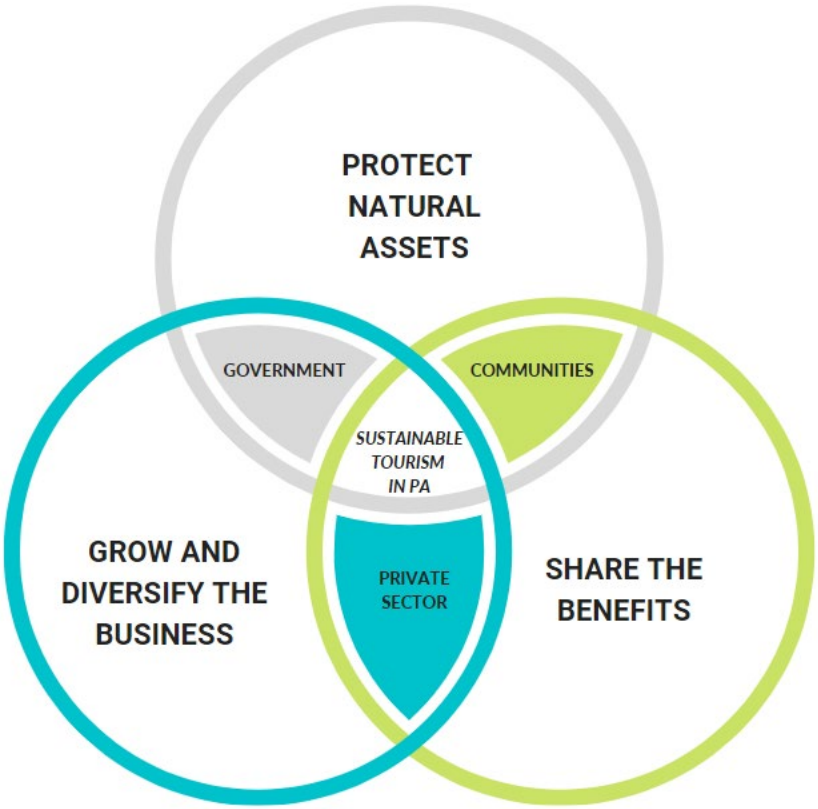
Policy Recommendations



As presented in the previous section, analysis of the country case studies has shown that protected areas, because they attract tourists, are able to conserve biodiversity and to stimulate local economic development in surrounding areas, providing employment for poor and non-poor households, and for those directly involved in the tourism sector, and others.

As countries begin to realize these benefits, there is great potential for protected areas to contribute to development goals and to secure biodiversity assets. While the findings of this study cannot be applied to all protected areas, they offer lessons from diverse settings from which policies can be tailored. Central to all efforts, however, is the need to manage protected areas well, promote tourism and diversify its offerings, and share benefits with local communities fairly. Taken together, these three factors can promote both development and biodiversity conservation (see Figure 22).

FIGURE 22 Framework for Sustainable Tourism in Protected Areas



Source: World Bank

4.1 PROTECT NATURAL ASSETS

4.1.1. Formalize Protected Areas

Biodiversity cannot be recovered once lost, and to conserve ecological assets, it is crucial to formalize protection. In Fiji, for example, few marine areas have been formally protected, and to remedy this situation, it is important, as a first step, to align these areas with formal ("gazetted") marine protected areas in order to build benefit sharing arrangements and scale up the impacts of these areas on local economies. Even if formalization restricts resource use, and prevents local people from fishing, hunting, or harvesting plants, such restrictions may be offset in the medium term, as over-harvested wild populations recover under formal protection and disperse into surrounding GMAs, buffer zones and favorable habitats. As noted in section 3.2, formal marine protection may cause recovering fish stocks to populate adjacent areas in which fishermen benefit from increased catch sizes. Formalization also gives governments authority to work with local businesses to pursue environmental standards which may reduce the impact of tourism on fragile ecosystems, including reefs.

4.1.2 Increase Public Investment in Protected Area Management

To promote biodiversity conservation and secure the natural assets visitors enjoy, protected areas must be conserved and well managed. This requires governments to address the underlying factors associated with poor performance, and to invest in their management. Conservation spending can address threats to natural assets (Waldron et al. 2017; McCarthy et al. 2012; Waldron et al. 2013), and improve management when used to hire and train staff, invest in infrastructure for enforcement and tourism, manage wildlife and other natural resources, and promote outreach. Investing in protected areas with viable tourism can also subsidize other parks in which tourism is still to be developed or is not suitable. Some of the broad categories of investments and activities are described in Table 7 below.

While investing in protected areas to grow tourism generates positive impacts for local economies, there are also tradeoffs that need to be considered. Higher tourist numbers increase the environmental footprint of the sector and may lead to the degradation of natural assets, reducing the net benefit to local economies. In Nepal's mountains, for example, deforestation for construction, cooking and heating in lodges, and waste generated by tourists threaten the quality of the very environment that attracts visitors from around the world. Similarly, plastic debris and aquatic litter in marine protected areas are unsightly, and can harm marine life. Damage to coral reefs from boat traffic, anchoring, and scuba diving also compromise marine habitats. Targeted, system-wide investments can contain impacts on environments and local economies, and one approach is high-value low-volume tourism which attracts fewer tourists that generate more income. Conservation tourism, ecotourism[13], and related activities may also promote low-impact development of the industry. Each of these strategies relies on local community participation and leadership for stakeholder buy-in and locally tailored actions. A recent World Bank report provides a review of tools and knowledge to guide nature-based tourism practitioners to prepare projects that promote sustainable tourism practices and policies, improve visitor management, and reduce impacts from tourism, among other important topics (see Box 10) (World Bank 2020c).

While asset protection is largely a public sector responsibility, government investment in protected areas demonstrates a commitment which makes private sector funding more likely. In some African countries, collaborative approaches have emerged in which the state delegates authority to manage protected areas to private or non-profit operators (Baghai et al. 2018). This enabling environment has resulted in more funding than state budgets allow for, and increased revenue retention for protected areas (Lindsey et al. 2021).

13 For tools and resources on developing these and other forms of nature-based tourism, see World Bank 2020c.

TABLE 7 List of Investments and Activities from Increased Public Investment in Protected Areas

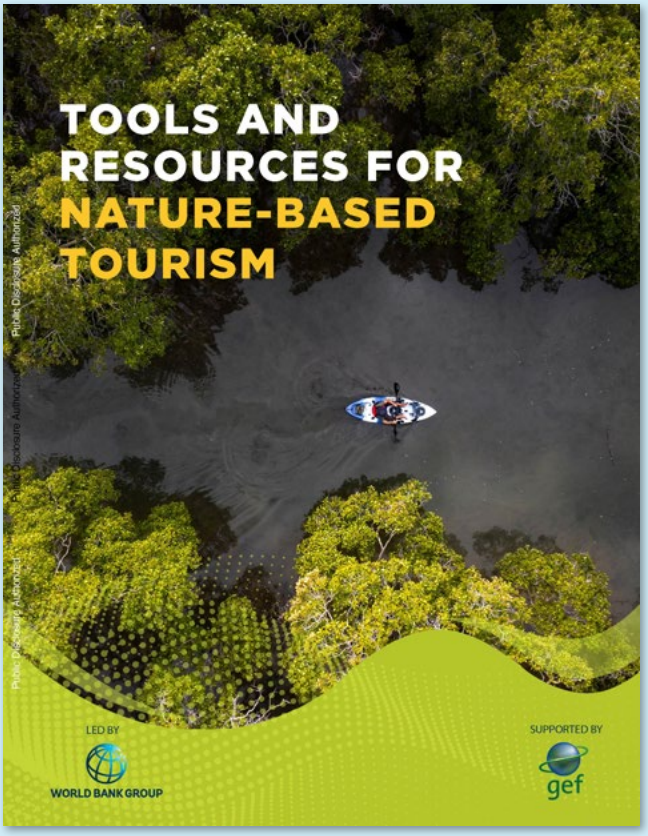
Categories	Sub-categories	Examples of activities in which investments can be made
I. Protected Area Management	Creation of protected areas	Creation and expansion of protected area network.
	Infrastructure	Infrastructure establishment and support for visitor centers, roads, accessibility and connectivity of protected areas, water holes, wetland management.
	Operations	Development of budgets, management plans, training & equipment for park guards, anti-poaching initiatives, fire protection, communications, and technology.
	Finance	Capitalization of conservation trust funds, design of regulatory framework for incentive structures for funding, and financial modeling.
	Monitoring, Research & Species Conservation	Implementation of- national and site level wildlife surveys, wildlife and habitat management, buffer zone and corridor management, trans-frontier cooperation, remote sensing and geospatial analysis for monitoring, rehabilitation, marine spatial planning, and reef and forest restoration.
II. Policy	Policy & Legal Reforms	Development of concessions, benefit sharing mechanisms, park entry fees, CITES compliance, and laws to combat illegal wildlife trade.
	Institutional Capacity Building	Staffing, equipment, technical assistance and training, support for administration and management, stakeholder analysis, research, information and knowledge sharing nationally and internationally.
III. Tourism	Tourism Development Strategy (“product”)	Technical assistance to develop a business plan and strategy for protected areas, marketing and branding, improving business climate i.e., awareness of nature-based tourism, feasibility studies, private sector investment, tourism opportunities, cultural and heritage conservation.
	Tourism Training & Skills Development	Skills development for locals to enter tourism sector, scholarships, sensitization to conservation activities, training local authorities, employment choices in tourism, education program for local youth, small-scale tourism/community-based ecotourism.
IV. Community Engagement	Livelihoods	improved livelihoods, conflict mitigation, “entrepreneurial” investments, conservation-linked incentives, sustainable use, and community action plans.
	Governance and community-based natural resource management	Sustainable resource management, land zoning, natural resource mapping, capacity building of local community members, indigenous knowledge sharing, governance, awareness, and behavior change.
V. Partnerships	Integrated Planning Across Sectors	Landscape and seascape management; cross-sector infrastructure, irrigation, transport, and agriculture; efficiency of complementary sectors (fisheries, climate-smart agriculture, climate change, forestry, pollution, and waste management).

Source: World Bank

Box 10 Tools and Resources for Nature-Based Tourism

A recent report, "Tools and Resources for Nature-based Tourism," gathered over 360 tools and resources categorized by the broad topics listed below.

- Enabling policy environment
- Governance and institutional arrangements
- Concessioning and partnership models
- Destination management
- Infrastructure and facilities
- Visitor management
- Nature-based enterprise development
- Impacts of nature-based tourism
- Risk management and climate change
- Monitoring and evaluation



TWO TOPICS HIGHLIGHTED IN THIS REPORT ARE:

1) Visitor Management - Visitor management tracks tourist behavior at a destination. There are a number of tools and techniques for pursuing the objectives of nature-based tourism while managing its negative impacts. The Visitor use management framework (2016) is such a tool, and is complemented by the Visitor capacity guidebook (2019), which helps protected area managers to collaboratively develop long-term strategies to manage the amounts and types of visitor use. The Congestion management toolkit (2014) provides approaches to managing congestion, and tools to address specific congestion problems, focusing on national parks in the United States. The IUCN's Best Practice Guidelines on Tourism and visitor management in protected areas (2018) provides guidance on using tourism to generate wider economic benefits for communities, reviews nature-based tourism's social and cultural impacts, and outlines principles of tourism and visitor management in protected areas.

2) Reducing Environmental Impacts. Several tools exist to reduce the environmental impacts of tourism, and to help practitioners balance its positive and negative outcomes. Environmental impacts of ecotourism (2004) reviews the environmental impacts and management of particular activities, such as hiking and camping, and impacts specific to certain ecosystems (e.g., marine environments, polar coasts, mountain environments). Conservation tourism (2010) provides case studies from tourism companies that have contributed to the conservation of global biodiversity. Green your business: Toolkit for tourism operators (2008) is a Canadian handbook which helps operators in protected areas to pursue sustainability, including through socio-cultural approaches. A practical guide to good practice for marine-based tours (2008) helps marine tour operators to improve their environmental and social performance so as to contribute to marine conservation and the economic development of coastal communities, and to appeal to increasingly discerning consumers.

Source: World Bank 2020c

To reduce over-reliance on tourism and stabilize protected area financing, other sources of finance such as conservation trust funds (Doinjashvili, Méral, and Andriamahefazafy 2020), impact bonds (Withers and Zoltani 2020), and payment for ecosystem services (Börner et al. 2017) can also be considered. Table 8 provides an overview of financial instruments, and the report, "Mobilizing Finance for Nature" provides detailed guidance on financing mechanisms for biodiversity conservation (World Bank 2020a). Robust strategies may involve several of these approaches in tandem, working towards a systems approach to protected area finance.

TABLE 8 Financial Instruments for Protected Areas

Instruments	Description
Conservation Trust Funds	Conservation Trust Funds are legally independent institutions (i.e., non-government) managed by an independent board of directors, which provide long-term, sustainable funding for conservation and/or protected area agencies through local grants. Trust funds can be endowments, sinking funds, or revolving funds.
Government budget/revenues	Government revenue allocations come from local, regional and national bodies, and/or authorities' public budgets. They also include earmarked government taxes on tourism, and on commodities such as gasoline, structured debt relief earmarked for conservation, and government bonds.
Carbon Finance	Carbon markets serve as a new opportunity for protected area funding but are usually inadequate to meet full management costs.
Revenues from tourism and recreation	Mechanisms include protected area entry and recreation fees, sport hunting and "green" safari fees, hotel and airport taxes, tourist and tourism operator contributions, and public land and tourism concessions, among others. Revenues should ideally be channeled to protected area management**.**
Compensation payments	Compensation payments are instruments to hold companies accountable for their impacts on ecosystems and biodiversity. They finance conservation by collecting fines for pollution, royalties for natural resource use, compensation for environmental impacts, or even voluntary contributions. Although compensation payments don't necessarily reflect actual environmental impacts or provide one-for-one compensation, they pay for the use of a natural resource by investing in the conservation of another. They are typically calculated as a percentage of project development costs and pertain to bioprospecting, royalties from resource extraction, fines for environmental damage, voluntary and mandatory payments, mitigation banking and biodiversity offsets.
Revenues from the sale and trade of wildlife	Revenue comes from the legal sale and trade of plants and wildlife products for conservation. International conventions, such as the CITES and associated national laws govern and monitor the legality of such trade. Financing mechanisms such as fines, wildlife auctions, loans, and in-situ-ex-situ partnerships contribute funding to species conservation.
Innovative financing mechanisms	Financial instruments can design and incubate mechanisms to raise and invest new capital which finances conservation and pays for results. These include Wildlife Conservation Bonds such as the Rhino Impact Bond, Lion's Share Fund, and Conservation Capital's Umiliki Investment fund, among others.
Collaborative Management Partnerships (CMP)	CMPs between state wildlife agencies and NGOs can attract investment and technical capacity to improve protected area performance. The three main CMP models - financial and technical support, co-management, and delegated management - yield median funds that are 1.5, 2.6 and 14.6 times greater, respectively, than baseline state budgets for protected area management (Lindsey et al. 2021).

Source: World Bank

TABLE 9. Staff Competencies

Core competencies	Fundamental competencies
• Organizational Awareness • Oral and Written Communication • Problem Solving • Technological Skills • Accountability • Individual Development and Planning • Flexibility • Attention to Detail • Interpersonal Skills • Integrity/Honesty	• Understanding the legal framework that applies to operators • Developing contracts or other authorizing instruments, and soliciting bids if applicable • Monitoring and evaluating operators • Data collection and analysis • Business acumen • Contract negotiation skills, and • Asset management training if government facilities are used by operators *By developing training and on-the-job education strategies, protected area managers can cultivate and retain the skills of their staff.*

Source: Thompson et al. 2014

4.1.3 Build Capacity of Protected Area Managers

Successful protected areas have qualified managers who are well versed in protected area laws and policies, and also understand the business needs and obligations to conservation of tourism operators and commercial entities. For example, managing concession programs requires skill sets that go beyond knowledge of wildlife management, and this capacity must be built.

Experience from many countries has shown that centralizing conservation at the national level allows for better access to specialists and decision makers, and more policy consistency, while the day-to-day management of concessions is best accomplished at the protected area level by trained park managers. Secondly, the number of staff needed to manage concessions agreements will depend on the number of contracts that are under development and/or operational. However, at a minimum, a national level program will require a program manager, project development team member (2–3 depending upon the number of projects), finance team member, operations and planning team member, facility management team member and a legal advisor. And finally, two types of competencies are needed for concession management personnel (see Table 9).

Core competencies refer to general skills needed by all staff in commercial services and could apply to departments/ministries in charge of protected area management. Fundamental competencies refer to key technical abilities needed by all staff in concession management.

4.1.4 Regularly Assess the Effects of Visitor Spending

To make the case for public spending, and to support planning, governments should regularly assess the impacts of protected area tourism, and use visitor surveys on a rolling basis to capture seasonal changes in tourism behavior. Among the case studies, only Fiji had a regular International Visitor Survey, which is led by the Ministry of Commerce, Trade, Tourism and Transport in partnership with the IFC. Visitor surveys and information on park visitor numbers and tourist spending behavior can be used to inform policies, improve services to tourists, assist local communities, refine tourism business models, understand the impacts of tourism and how they may change over time, and demonstrate the economic returns of investing in protected areas.

4.2 GROW AND DIVERSIFY TOURISM BUSINESSES

4.2.1 Diversify Tourism Offerings

In the countries we studied, to grow and diversify tourism will require policies, programs, and investments that go beyond protected areas. In many countries, nature-based tourism is clustered around key protected areas, concentrating both positive and negative impacts on these regions. In Zambia, for example, over 40 percent of the country's land is under some form of protection, including 20 national parks, yet 95 percent of tourism is clustered around just five national parks (Ministry of Tourism and Arts, Republic of Zambia 2018). Similarly, in Nepal, tourists predominantly visit only four protected areas: Shivapuri-Nagarjun National Park (close to Kathmandu), Annapurna Conservation Area, Chitwan National Park, and Sagarmatha National Park, home of Mount Everest. In Brazil too, tourists are concentrated in a relatively small number of protected areas. For example, according to ICMBio (2019), the most visited national parks in 2018 were Tijuca, with 2.6 million visitors, followed by Iguaçu (1.9 million) and

Jericoacoara (1.9 million). The most visited federal marine protected areas in 2018 were Arraial do Cabo Extrativist Reserve (1.2 million visitors) and PN Fernando de Noronha (0.1 million).

In the four countries, this concentration of visitors at well-known sites makes it important to expand the number of protected area sites in order to better manage tourism's impacts. Thus, the tourism potential of new sites in each country's protected area network needs to be assessed, and priority sites identified which consider road access, security, biodiversity, landscape attractions, and local stakeholder interest in tourism development. A recent World Bank publication on Nepal provides guidance on site selection and private sector inclusion in this process (see Box 11).

4.2.2 Develop Concession Policies to Promote Tourism in Protected Areas

Another means to promote tourism in protected areas is through *concessioning*, which can help to address tourism infrastructure financing, managing existing infrastructure (mandate, skills, personnel), and offering public services. Leases, management contracts, and licensing (Leung et al 2018; Thompson et al 2014) may play similar roles (see Figure 22).

A business will need a concession agreement to operate inside a protected area, for example. A concession agreement stipulates key terms and conditions that the business must operate under, such as duration, type of operation, environmental conditions, and fees for access. A commercial services/concessions program in any country should include the following elements:

1. Strong protected area laws and regulations
2. Public support for commercial activity in parks
3. Demonstrated economic benefit
4. Commercial Service/Concession laws drafted with stakeholders, including potential operators/concessionaires, environmental groups, and the general public
5. Legal framework allowing implementing agency to set policy details
6. Socializing the draft law
7. Implementing the law through regulations that are clear and thorough; and
8. Modifying these laws/regulations when necessary.

The regulatory framework of concessions policies is discussed further in Box 12, in which current policies in the four country contexts are outlined.

FIGURE 23. Instruments to Outsource Tourism

	CONCESSION	LEASE	MANAGEMENT CONTRACT	LICENSE/ PERMIT
Description	Long-term user rights. Concessionaire has responsibility for investment and is usually accountable for management	Lease agreement. Private operator leases facility and assumed operating responsibility	Agreement with operator of payment of an existing fee based on performance	License for undertaking activities in PA that could otherwise be considered illegal and where operators are screened. Permit for legal activities
Duration and Payment	10-40 years, fee (could include revenue sharing)	More than 5 years, fee	<5 years, government pays fee, might be performance-based fee	Up to 10 years, licenses/ permits paid by operator
Private Operator Functions	Design, rehabilitate, extend, build, finance, maintain and operate. Ownership PA	Maintain, operate, and provide services	Depends on the contract	Depends on the contract
Activities	Accommodation, restaurant, retail	Use of fixed infrastructure	Use of fixed infrastructure	Vehicle-based tour (license), guiding, canoeing, hunting.

Source: World Bank

BOX 11. Selecting Protected Area Destinations for Phased Nature-Based Tourism Development

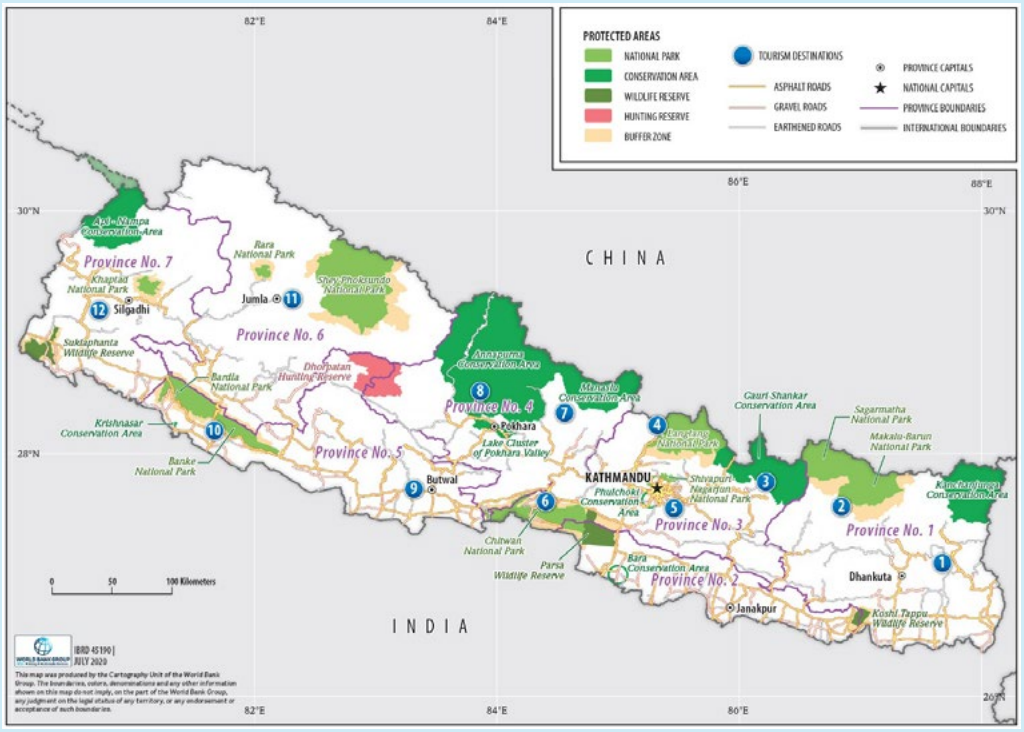
To diversify and expand nature-based tourism in Nepal, the WBG has identified twelve destinations across the seven newly-formed administrative provinces, in consultation with stakeholders (see Map B11.1). Selected destinations can be ranked according to private sector opportunities, based on the desirability of growing key sectors and the feasibility of addressing constraints to this growth. Desirability and feasibility can be roughly equated to social returns (desirability) versus risk-adjusted private returns (feasibility) of investment in each sector.

These destinations may be ranked according to the criteria above to identify optimal sites for high private sector development impact. Such sites need to score highly for both criteria in order for the private sector to contribute to development, as even if social returns are high, private sector involvement is profit-driven. However, the expansion of protected area tourist offerings is critical to manage tourism's negative impacts and achieve conservation/development goals, and requires private sector participation to complement scarce public funds. By both leveraging the private sector and optimizing the use of public resources, financing for development and growth can be maximized.

In terms of the desirability/feasibility criteria, Provinces 4 and 5 offer the greatest opportunities for private sector engagement, and may be able to develop destinations to attract high-end and mid-range markets. Mid-West (Province 6) and Langtang and Gaurishankar (Province 3) have similar potential, while Far West Nepal (Province 7) and Eastern Nepal destinations (Province 1) are not ranked as highly due to access limitations. Kathmandu valley (Province 3), Everest (Province 1), and Chitwan (Province 3) are relatively mature markets with little diversification potential.

Desirability Criteria	Feasibility Criteria
Employment creation potential - Potential over 5 years (e.g., from less than 500 jobs to high potential of 5000+ jobs)	**Potential for more visitors (market appeal)** - Competitive in relation to other natural & cultural destinations
Impact on inclusiveness - Potential impact in addressing poverty, marginalized ethnic groups/gender through direct and indirect benefits	**Potential for more spending by visitors** - Demand from higher-spending tourists is present but not fully realized due to lack of activities, facilities and access
Private sector investment potential - Potential to attract relatively large investors (FDI, large investor and medium-size investor) in the high-end to mid-range market segment e.g., 'tourist hotel' three to five-star accommodation	**Access infrastructure** - Infrastructure availability, level and planned development
Product innovation and value chain addition - Potential to add value to the destination/tourist activity, be replicable, and improve positioning, brand and appeal	**Alignment with national and local government priorities** - Alignment with national strategies and local/regional development policies
Cultural and environmental protection – Improved environmental sustainability/protection and protection of cultural assets	**Empowerment at destination level** - Clarity of local mandates & involvement of local public and private stakeholders and communities

MAP B11.1 Twelve Potential Tourism Destinations in Nepal



Source: World Bank 2020b

BOX 12 Concessions Policies for Protected Areas

Commercial visitor services, or tourism concessions, are facilities and services provided to protected area visitors to facilitate their use and enjoyment of a park. Concessions enhance park operations by providing services such as accommodation, food, merchandise, recreational activities, rental equipment, and transportation services. These typically do not include services needed for the operation of the park itself, like park infrastructure, trails, visitor education centers, ranger stations and restrooms. Concessions, rather, provide services and activities that enable visitors to enjoy and explore parks in a manner aligned with the conservation goals of the area.

When concession and commercial service agreements are managed well, they benefit the park, the community, and the operator. Private concessions can provide opportunities to communities around protected areas through employment, training, and economic development. Concession operators can be private companies, non-profits, community groups or partnerships.

The US National Park Service was the first national park service to use concessions, starting over one hundred years ago. Since then, concessions policies have come to resemble licenses to operate on government property, in which visitors are customers and the government oversees the operator/concessionaire. In addition to a supportive relationship with the concessioning authority in the protected area, best practices for a commercial services/concessions system include:

1. **Well defined, transparent and consistent processes** to deal with commercial interests so that parties are treated fairly and consistently.
2. **Explicit and transparent criteria** should be applied to commercial decisions.
3. **Decision-makers must be identifiable, and independent** from the process.
4. **Conflicts of interest should be avoided,** and agencies should have processes to prevent these.
5. **Separate processing/management and decision making** of concession activities, in support of principle four.

Concessions policies from Brazil, Fiji, Nepal, and Zambia were reviewed with respect to the legal frameworks for commercial operations in parks, regulations, and procedures that are publicly available to interested parties (see Table 10). Concessions laws vary between the countries: in Nepal and Zambia, concessions policies are included in protected areas law, while in Brazil, a separate law exists for concessions in protected areas. Fiji has no specific legislation, but existing laws do not prohibit concessioning. Revenue to governments from commercial concessions totalled US$15M in Brazil (with 11 concessions contracts and over 2,000 commercial use authorizations) and US$120M in Nepal (with 6,630 concessions contracts). Strong concessions policies allow for sustainable tourism growth in protected areas, especially if governments prioritize these policies and support protected area management staff to uphold them.

TABLE 10 Authority, Law, or Regulation Governing Concession Component

Concession component	Authority, law, or regulation governing component			
	Brazil	Fiji	Nepal	Zambia
Contract Term	By policy	N/A	Law	Unknown
Methodology for Determining Appropriate Activities	No, relies on management plan	N/A	X	No, relies on management plan
Written Regulations and Policies that are legally enforceable	Yes	N/A	In process	Unknown
Solicitation, Selection, Evaluation & Award Procedures	Yes, procurement law	N/A	X	Unknown
Non-Competitive Award of Concession Contracts	No	N/A	X	Unknown
Unsolicited Applications	No	N/A	Never	Unknown
Standard Concession Contract Provisions	No, by policy	N/A	X	Unknown
Protection of Concessionaire Investment	In contract	N/A	X	Unknown
Franchise Fees	Yes	N/A	X	Yes
Community Award of Concession Contracts	No, separate law	N/A	Unknown	Unknown
Reasonableness of Rates to Visitors	No, by contract	N/A	X	Unknown
Economic Development/Benefit to Indigenous Populations	No, separate law	Yes	Unknown	Unknown
Annual and Periodic Reviews	No, by policy	N/A	Unknown	Unknown
Dispute Resolution	No, by policy	N/A	Unknown	Unknown

4.3 SHARE BENEFITS WITH LOCAL COMMUNITIES

4.3.1 Formalize Benefit Sharing Arrangements

As noted, when communities benefit from protected areas, particularly through tourism, they have an incentive to support parks, and become stakeholders in conservation. Benefit sharing formalizes this process, and each of the four countries have different benefit sharing arrangements as seen in Table 11.

It is important to note that not all protected areas generate tourism revenues for communities, and that destinations must be sufficiently popular to provide ongoing economic stimuli to local economies. Even when tourism generates revenues, these need to be equitably distributed among beneficiaries in order for these communities to support the protected areas from which the benefits are derived. Furthermore, there are differences between income impacts for women and men living in protected areas and OECMs, and it is important that these differences inform the conservation and use of natural resources. Table 12 provides an overview of benefit sharing arrangements along with examples that can be used by park authorities in discussions with communities.

TABLE 11 Comparative Benefit Sharing Arrangements in the Four Countries

Country	Benefit sharing arrangements
Zambia	The Zambia Wildlife Act (2015) states that revenue from consumptive and non-consumptive tourism (hunting) must be shared with communities - 50 percent of the revenue from outfitter licenses, animal fees, and hunting fees, and 20 percent from safari hunting concessions is shared with community resource boards (CRB), and 5 percent is shared with local traditional leaders. Payments to CRBs are split three ways: 20 percent for CRB administrative costs; 35 percent for community development projects (boreholes, toilets and schools); and 45 percent for resource protection, primarily through employing scouts for patrols. In addition, lodges in GMAs participate in social responsibility programs, usually involving reinvestment in the community in the form of schools, hospitals and conservation. This serves as another mechanism for communities to benefit from tourism in protected areas.
Nepal	The Buffer Zone Management Regulations (1996) allow for 30–50 percent of park income to be channeled to local communities living in buffer zones for community development and natural resource management. These regulations allow user committees to spend 30 percent of their annual funds on community development, 30 percent on conservation, 20 percent on income generation and skills development, 10 percent on conservation education, and 10 percent on administration. Additionally, tourism is encouraged in community forests in buffer zones, many of which offer a variety of tourist products, including locally owned and operated accommodation. The regulations, however, prohibit land occupation and tree cutting, which restricts construction of lodges in forests, while The Forest Act prevents communities' forest user groups from mortgaging or transferring their use rights, and thus precludes direct partnerships with private sector concession or lodge operators.
Fiji	In Fiji, there are no formal benefit sharing agreements, apart from the Shark Reef Reserve in which a community trust fund receives 20 Fijian dollars per diver; this is in part due to the Surfing Area Decree (2010) which was enacted to promote Fiji as a premier surfing destination. The decree grants unrestricted and uncompensated access to surfing areas and supersedes all other forms of title, meaning that communities cannot charge for the use of traditional fishing grounds for tourism. However, in de-facto protected areas that are established when a foreshore lease is issued to a tourism enterprise, the Department of Land requires that local communities are compensated for their loss of fishing rights.
Brazil	Brazilian legislation makes no provision to share park fees and concession revenues with communities living adjacent to national parks.

TABLE 12 Benefit Sharing Arrangements with Local Communities

Benefit Sharing Arrangement	Examples
Direct and indirect employment	Direct: restaurant employees, wait staff, gardeners, taxi/boat drivers, park guides, and handicraft. Indirect: Construction, food/goods for restaurants etc.
Revenue sharing mechanisms of protected area authorities	Refers to tourism revenues from concessions and partnerships, and income from levies, permits, hunting fees and/or taxes which are allocated to local communities. Such funds may be distributed through organized/formal trusts and used to finance local public goods and community development initiatives such as schools, clinics, small scale infrastructure, energy projects, environmental protection, etc. (Spenceley, Snyman, and Rylance 2019).
Revenue sharing schemes from tourism businesses and partnerships	Approaches or partnership models include public-community initiatives, public-private partnerships, community-owned-and-run enterprises, community-private partnerships, and public-private-community partnerships. Information on roles, responsibilities, challenges and limitations for each of these approaches are detailed in the World Bank report, "Supporting Sustainable Livelihoods through Wildlife Tourism" (Twining-Ward et al. 2018).
Sustainable harvesting of plants and animals	Many communities depend upon natural resources for their livelihoods. Allowing access to and sustainable harvesting of these resources can improve community support for protected areas.
Shared decision-making and capacity building	Local consultation on tourism development and protected area access, and support for communities to start small businesses and conservation enterprises.

4.3.2 Strengthening Income Multipliers

Communities benefit from the economic activity spurred by tourists visiting protected areas, and the economic impact of this activity, through direct and indirect linkages, may be expressed as an income multiplier. Once these mechanisms have been understood, government policies and programs can be designed and implemented to strengthen their economic impact. Providing opportunities for tourists to interact with local communities can achieve this, and in some areas, transport is needed so that tourists can more easily visit local towns and villages; strengthening the capacity of local communities to provide goods and services to tourists also strengthens income multipliers.

Employment in and through tourism provides the most tangible demonstration of the value of protected areas and is arguably the strongest single lever for delivering this value to local people living near them. For this reason, governments should invest in projects which assist households to participate in the tourism economy through entrepreneurship training, skills development, credit services and logistics, among others. Governments should also support business diversification and local procurement to strengthen linkages in local economies, drive production and employment, prolong circulation of money and thus increase multipliers. These benefits may be distributed more fairly by including the poor and disadvantaged. More opportunities for benefit sharing are presented in Table 13.

TABLE 13: Opportunities to Increase Benefits for Local Communities Around Protected Areas

Tourism Impact	Avenues/Opportunities to increase benefits
Direct	• Formalize revenue-sharing mechanisms • Build capacity and develop skills • Promote sustainable use of natural resources • Reduce human-wildlife conflict through mitigation and/or compensation • Pursue inclusive governance
Indirect	• Hire local labor for tourism and protected area management • Encourage local sourcing of goods by tourism establishments • Strengthen market linkages • Offer small grants for businesses and enterprises • Provide agricultural extension and increase capacity of local communities to supply goods and services

4.3.3 Mitigate and Compensate for Human-Wildlife Conflict

Mitigation and compensation are fundamental to the management of human-wildlife conflict, and to secure constituencies for conservation in communities surrounding protected areas. However, the management of compensation payouts is important, and some studied communities expressed concern that they do not receive revenue shares in a timely or appropriate manner. In Zambia, for instance, distrust between park authorities and communities arises through delays in the timing of payouts, which do not coincide with peaks in human-wildlife conflicts. The positive effects of other benefit-sharing mechanisms may be lessened by operational and financial weaknesses, or lack of transparency in the transfer of funds to communities.

In Nepal, over a million people depend on resources in buffer zone community forests, and thus, conflicts arise over land use and resources. Buffer zone user committee groups compensate farmers for a portion of their crop losses through cash transfers, but the estimation of crop damage is very difficult, and surveys from the six buffer zones indicate that payments cover only a small fraction of losses. Other approaches to mitigation include investment in local level strategies (seasonal fences, livestock corrals, etc.), and while these may be effective, further research is needed, along with standardized methods for the estimation of crop losses.

4.4 GREEN RECOVERY

The economic impacts of COVID-19 are far-reaching, with monthly losses recorded in all study sites. Fiji, where tourism accounts for over one-third of the country's economy (WTTC 2020), showed the greatest monthly losses. In each site, the pandemic has resulted in lost jobs and income following declines in tourism, an industry previously known for its global growth.

These losses do not signal a volatile or risky sector, but rather the effects of the pandemic; nonetheless, they flag the need for strong governance, built-in resilience, and a social safety net. They also indicate the added imperative to make the case for protected area tourism as a means towards a green economic recovery. In making such arguments, evidence is needed to persuade governments that, through tourism, protected areas can play a role in economic recovery from the pandemic and attract private sector participation to deliver economic and development outcomes aligned with conservation objectives.

Large-scale investments in protected areas can create jobs and boost economic recovery and resilience. In the United States, the Civilian Conservation Corps (CCC) was established during the Great Depression, and created jobs, infrastructure, and an industry which thrives to this day. The initiative was a government-wide partnership between the Forest Service, the National Parks Service, the Labor Department, and the US Army (see Box 13).

The world currently faces a crisis with similar features: pressures on the environment are unprecedented, and COVID-19 has resulted in large-scale unemployment, making the CCC as relevant as a green recovery model now as it was in 1933. This year, the U.S. Government has repurposed this initiative. The new *Civilian Climate Corps* aims to put Americans to work through conservation and restoration of public lands and water, and addressing climate change (The White House 2021). Similarly, countries with potential to grow their nature-based tourism sectors, such as those in this study, could benefit from CCC-like schemes to kick-start their protected area tourism sectors to maximize benefits to protected area-adjacent communities.

The COVID-19 pandemic provides a window-of-opportunity for countries to develop management settings and systems while demand and use pressure are low. Frameworks can be devised that are not immediately binding (due to lower demand), which will give managers time to trial, consult and lay a foundation for what sustainable tourism may look like. As demand returns, systems can gradually become binding, following testing of new operations that prioritize long-term, sustainable, and system-wide approaches. Similarly, the low demand period will give park authorities time to collect data on social, ecological and tourism impacts for later evaluation.

BOX 13 Transforming Landscapes, Creating Jobs and Laying the Foundation for Long-Term Economic Growth - Learning from the Civilian Conservation Corps: a Green Economic Recovery Initiative

Context

In 1933, the Great Depression had left about 25% of Americans unemployed, and America had endured years of drought, forest fires, severe land degradation, and rampant soil erosion. The CCC was established as part of the New Deal Program, and while tasked with generating employment, was more than a cash-for-work program. It restored natural capital, correcting years of forestry mismanagement, deforestation and land degradation, and invested in physical capital, laying a foundation for economic growth.

During the CCC's nine-year operation, it employed approximately 5 percent of the US male workforce (about three million people) as skilled and unskilled labor, training them to build and manage businesses in construction and landscape design, for example, some of which persist to this day. The CCC led to the creation and expansion of the nationwide state parks system. It invested in the infrastructure for almost all of America's national parks, and increased visitor numbers to national and state parks from 3.2 to 20.4 million in nine years.

ACHIEVEMENTS

JOB CREATION	ECOLOGICAL RESTORATION	TOURISM DEVELOPMENT
• Employed ~3 million people (~5% of the U.S. male workforce) • 250,000 hired in the first 3 months • Mostly urban recruits, aged 18–25 years • Professionals - landscape architects, engineers, historians, foresters, geologists, ecologists, administrators – also employed and trained • College students were recruited through the internship program	• 3.5 billion trees planted • 3,470 fire towers built, 97,000 miles of fire roads constructed, 4,235,000 person-hours fighting fires • Erosion arrested on > 20 million acres (e.g., check dams, terracing, re-vegetation) • Investments in flood control, irrigation, and drainage	• 28,000 miles of hiking trails • 63,000 visitor buildings • 711 state parks established • Investments in infrastructure for the iconic Yellowstone and Grand Canyon National Parks • Hoover Dam was built with funding and labor (21 000 men) from CCC; the largest reservoir in the US. CCC involved in the construction, artwork, sculptures, excavation, and building of the tourist museum

ECONOMIC LEGACY

- Expansion of U.S. Recreation and Heritage Tourism Sector
  - » Visitors to national and state parks increased from 3.2 to 20.4 million in nine years
  - » Today, parks receive over 320 million visitors per year who spend an estimated US$21 billion in local gateway regions, supporting more than 340,500 jobs, generating US$41.7 billion in economic output
- Some of the entrepreneurs trained through the CCC created businesses that exist to this day
- The CCC became a model for future conservation programs
  - » More than 100 present-day corps programs operate at local, state, and national levels, engaging young adults in community service and conservation activities

Box 14. Green Recovery Initiatives in Tourism and Conservation

NEW ZEALAND
is investing
$200 million
to create green jobs on public conservation lands, which will improve nature-based tourism

PAKISTAN
aims to create
200,000 jobs
by investing in nature and expanding its national parks network

KENYA
is investing
$18 million
in tourism by supporting 160 community conservancies and engaging 5,500 scouts

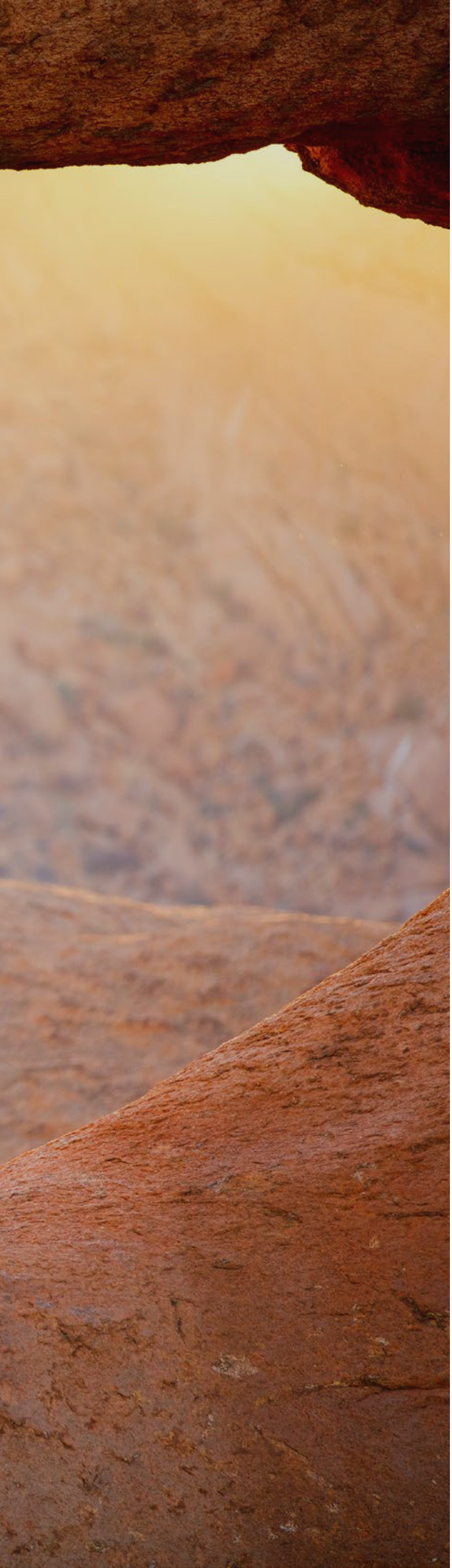
USA
will invest
$3 billion
to restore parks and support land and water conservation. It is expected to create approximately 100,000 jobs

Globally, many countries seek to invest in green policies as part of their recovery strategies (see Box 14). As the global economy re-opens, nature-based tourism can empower small- and medium-sized firms through concessions policies in and around natural areas, and encourage spending in local communities. Additionally, support can be given to local businesses through loans, fast-track financing, technical assistance to diversify operations, and use of digital technologies. Jobs created, for example, to improve accessibility (e.g., road network improvements), patrol protected areas, and improve park infrastructure can grow tourism and create a sustainable source of income for households in surrounding areas.

A window-of-opportunity is now open to address the failures and challenges of the industry, and to promote a more inclusive, pro-poor, and environmentally sustainable protected area-based tourism sector.

5

Conclusion



The COVID-19 pandemic has led to a global recession, while at the same time, biodiversity loss poses a growing jeopardy to the biosphere. In the wake of the pandemic, the tourism and conservation sectors have suffered setbacks, with tourism dwindling worldwide, and the funding deficit for conservation growing ever larger. In this context, the question was posed: can countries afford to maintain and expand their protected area networks under such economic duress, and while so many development challenges remain intractable? The report's answer to this question is 'yes' –the promotion of inclusive, sustainable tourism in protected areas offers a way for countries to arrest biodiversity loss, assist post-pandemic recovery, and address longstanding development challenges.

To back this argument, the report quantifies some of the economic impacts of protected area tourism to show that protected areas promote conservation and development. From case studies covering a mix of economies and contexts, the report draws on survey data and modelling to show how tourism catalyzes expanding patterns of cross-sectoral demand and supply which support growing shares of employment among poor and non-poor households. This research concludes that protected area tourism is associated with growing local economies, job creation, high income multipliers, poverty reduction, and attractive returns on public investment.

While caution is warranted in interpreting results and over-generalizing findings, protected areas prove to be valuable economic assets, high-return investments, and a promising means to protect biodiversity and to recover from the pandemic via greener development pathways.

To secure these potentials, however, the report recommends that conservation areas receive formal protection, increased public and private investment, close monitoring, and capacity support for managers if their role as 'engines of development' is to be realized. In addition, and to dilute tourism's negative impacts, the report calls for an expanded network of protected areas to host a diversifying tourist sector which attracts private investment and strengthens its operations through concessions and similar instruments. Finally, and in response to a pandemic which has laid bare the persistence of global inequalities, the report notes that protected area neighbors are crucial conservation allies and beneficiaries, and argues strongly to formalize benefit sharing, strengthen income multipliers, and manage human-wildlife conflict.

COVID-19 has led to a global recession, reversed development gains, crippled the tourism industry, and shrunk conservation funding in the face of dire threats to the biosphere. In such a context, the conclusions of this report are of vital importance – they ask that decisionmakers view protected areas and the tourists who visit them as an opportunity to act wisely and sustainably in response to these challenges.

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