

COVID-19, Environmental Impacts, and Implications for Tourism

COVID-19 has provoked major disruptions to global economic activity, mobility, and human health, resulting in indirect environmental impacts.

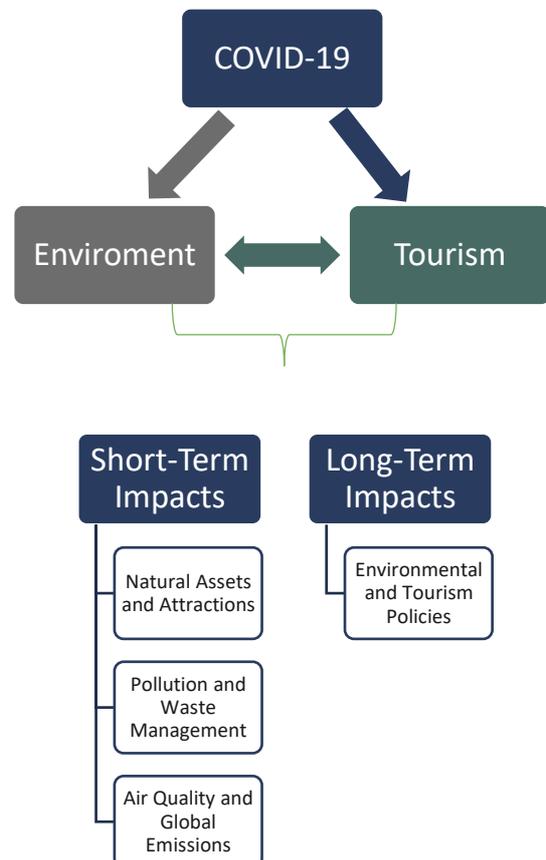


Many countries' tourism sectors, particularly in developing economies, are based on natural assets (e.g., forests, coastlines, wildlife) and linked to environmental conditions (e.g., clean air and water, pollution). Given the close relationship between tourism and the environment, the environmental impacts of COVID-19 have short- and long-term implications for sectors already disrupted by mobility and travel restrictions. This document is designed as a "primer" for those working on COVID-19 recovery and tourism. It highlights critical challenges as well as opportunities for the short-term and longer-term, organized in four areas shown below, and provides several preliminary recommendations and further resources.

Over the short-term (six months to two to three years, depending on the varying pace of tourism recovery by country), the changes caused by COVID-19 will continue to manifest impacts on the environment. These impacts are derived from the halt in tourism and also have the potential to affect its recovery. When tourism rebounds, positive changes may reverse and negative impacts may continue in the absence of deliberate efforts to address them. Over the longer-term, impacts stemming from the pandemic and the global tourism shutdown can be expected on environmental and tourism policies. Strong

leadership and action will be needed to harness the momentum toward positive trends.

Figure 1. Framework of Short- and Long-Term Impacts at the Nexus of COVID-19, Environment, and Tourism



Short-Term Impacts

1. Natural Assets and Attractions

Fewer visitors to natural assets and attractions have meant a reduction in associated human pressures. However, declining tourism levels have also resulted in loss of funding for protected areas (PAs) and other conservation areas necessary to maintain these assets. Opportunities and challenges related to the nexus of COVID-19, natural assets, and tourism are summarized below.

Opportunities

- **Ecosystem recovery.** The reduction of tourism and human activity may give previously stressed ecosystems temporary opportunities for recovery. A study in Italy combined multiple tools to find that reduced human activity during the lockdowns allowed wildlife to exploit new habitats and increase daily activity (Manenti and others 2020). Marine ecosystems may also benefit from reduced ocean activities from transport and tourism (Jainchill 2020). The suspension of cruise operations, which are associated with air pollution, marine degradation, and greenhouse gas emissions, may have positive short-term impacts. In Hong Kong, for example, dolphin populations in the waters between Hong Kong and Macau were noted to have increased by 30 percent after high-speed ferry lanes were shut down (Davidson 2020). Coral reefs may experience a reprieve from damage that can occur from diving, snorkeling, sunscreen, and other human activities, though more research is needed to confirm impacts (Morimoto 2020).

Challenges

- **Loss of funding.** The budgets of many protected areas, as well as conservations areas outside of PAs such as community conservancies, are funded largely by tourism revenues. As entrance fees and visitor expenditures shrink, PA managers report decreased ability to properly manage, patrol, and enforce regulations in their PAs. A survey of PA agencies in Africa found that nearly half could maintain basic operations for only up to three months if the restrictions imposed by COVID-19 continued to be in force. This loss of income affects their ability to perform basic functions, including payment of salaries and protecting endangered species, monitoring illegal wildlife trade, and protecting local communities from damages caused by wildlife (Waithaka 2020).

The preservation of Galapagos National Park is significantly financed by entrance fees. About 97 percent of the fee revenues come from foreign tourists and restrictions on international travel have resulted in steep losses. A study projected that a six-month ban would lead to the loss of 53 percent of total yearly income, or nearly US\$10 million (Díaz-Sánchez and Obaco 2020).

- **Increased risks of illegal activities.** PAs and conservation areas are often surrounded by communities with high levels of poverty who rely on economic opportunities generated by the PAs, such as tourism. As sources of income dwindle for communities, there has been an increased uptake in illegal activities such as poaching, illegal hunting and fishing, logging, and burning to compensate for lost income. For example, many areas in Africa have seen a rise in bush-meat poaching (Roberts 2020). In Uganda a well-known silverback gorilla was killed, putting at risk his group of 17 gorillas (Losh 2020).

2. Pollution and Waste Management

Tourism shutdowns and economic lockdowns have temporarily reduced the amount of waste and pollution in many destinations; however, these benefits may be counterweighed by increased usage of single-use plastics, chemicals, and medical/cleaning equipment, including over the long-term with human behaviors change. Opportunities and challenges related to the nexus of COVID-19, pollution, and tourism are summarized below.

Opportunities

- **Reduced waste and pollution and improved management.** Reduced human and tourism activity have resulted in lower-than-usual concentrations of plastics and other waste on beaches in some areas (in Brazil and Ecuador, studies quoted in Zielinski and Botero 2020). The amount of municipal solid waste in some large and medium cities was reduced by 30 percent during the disease outbreak (Klemeš and others 2020). The disruption of global value chains and existing waste infrastructures may prompt governments to revise current waste policies and examine issues with waste infrastructure systems. Furthermore, COVID-19 has increased attention on the single-use plastics dilemma, and the ripple effects have the potential to accelerate new approaches and solutions. In countries such as Vietnam and Thailand, the World Bank and IFC are working on the circular

economy and supporting private sector investment in new materials, sustainable packaging, and recycling markets to curb plastic waste (Malpass 2020).

Off the coast of Tangier, Morocco, water surface temperature data, which can be used as a proxy for fecal pollution detection, suggested improved bathing water quality in April 2020, after the lockdowns started, compared to April 2019. Tangier is the site of prolific industrial, tourism, and urbanization activity. This study suggests that the large suspension of those activities have reduced wastewater discharge into coastal waters (Cherif and others 2020).

Challenges

- **Disruptions in policies.** COVID-19 has disrupted plastic regulations, bans, and policies at the regional and national levels and created changes in plastic waste management with potential negative implications for the environment and human health (Silva and others 2020). Low oil prices have also pushed down the costs of virgin plastic, making it cheaper for manufacturers than recycled plastic (Chasan 2020). Marine litter and plastics threaten the tourism sector by degrading important tourism assets such as coastlines and beaches and harming marine life. Researchers in 2020 estimated that without action, annual plastic flows into the ocean will nearly triple from 11 million metric tons in 2016 to 29 million metric tons in 2040 (The Pew Charitable Trusts and SYSTEMIQ 2020).
- **Personal protective equipment.** An estimated 129 billion face masks and 65 billion gloves are used every month globally during the pandemic. Mismanagement of such personal protective equipment (PPE) can result in widespread environmental contamination (Prata and others 2020) and reduce visitor satisfaction.
- **Single-use plastics.** Many COVID-19 tourism protocols call for increased single-use plastics. The additional hazardous waste, coupled with reversal in plastics bans and regulations, could mean greater pollution and waste that affects the appeal and competitiveness of tourism environments.
- **Hazardous medical waste.** In China, there have been major challenges in handling hazardous medical waste. The generation of medical waste increased sharply (+370 percent) in Hubei Province, with a high proportion of plastics. In Wuhan, medical waste increased from the normal level of 40 ton/day to about a peak of 240 ton/day, exceeding the maximum incineration capacity of 49 ton/day. Treatment capacity may not be able to meet this increased waste flow (Klemeš and others 2020).

- **Harmful waste disposal.** Countries or municipalities with fewer resources may need to apply inappropriate waste management strategies such as landfilling or open burnings (Silva and others 2020). Additionally, treating waste as potentially contaminated can stimulate the use of plastic and the generation of mixed waste.

Food containers in Germany that would normally be classified as recyclable waste now have to be treated as hazardous waste if there is risk of contamination with pathogens (Klemeš and others 2020).

- **Environmental contamination.** The widespread and/or intensive use of disinfectants to fight COVID-19 may enter water bodies and pose health and environmental risks; more research is needed in this area (Paleologos and others 2020).

3. Air Quality and Global Emissions

Air quality and global carbon emissions may see short-term gains from the pandemic. Lockdowns have necessitated a shift to virtual meetings and brought business travel to a halt. Even as travel resumes, some observers believe business travel may be permanently reduced by as much as 36 percent (McCartney 2020). Opportunities and challenges related to COVID-19 and air quality and global emissions are summarized below.

Opportunities

- **Improved air quality.** For those destinations whose competitiveness is hampered by poor air quality and pollution, noticeable short-term improvements brought by the lockdowns provide a glimpse of how permanent changes can benefit both residents and tourists.

In China, the countrywide ban on traffic mobility reduced transportation emissions and improved air quality. As a result of the improved air quality, researchers estimate that nearly 9,000 nitrogen dioxide-related deaths were avoided during the quarantine period of February 10 to March 14 (Chen and others 2020, also see Narain 2020).

- **Reduced carbon dioxide emissions.** Researchers estimate that global carbon dioxide emissions dropped by 6.4 percent, or 2.3 billion tons, in 2020. However, this decline was less than predicted and emissions surged in the second half of 2020 as some economies recovered, despite new restrictions being put in place

in other areas (Liu and others, quoted in Tollefson 2021). Energy demand contracted as a result of restrictions on mobility and social and economic activity. As after previous crises, however, the rebound in emissions may be larger than the decline.

Challenges

- **High levels of debt and limited funding.** As countries face mounting levels of debt and economic recessions from the pandemic, investments in clean energy and low-carbon technologies may be reduced, which could increase carbon emissions (Gillingham and others 2020). Governments have the opportunity to dedicate stimulus investments to cleaner and more resilient energy infrastructure (IEAb 2020).
- **Shifts in travel habits.** Data shows that public transportation usage plunged during the pandemic (IEAa 2020) and tourists may favor more energy-intensive modes of travel, such as personal vehicles, out of an abundance of caution.

Long-Term Impacts

4. Environmental and Tourism Policies

COVID-19 has highlighted the need for improved environmental and tourism policies and funding. The pause to tourism activities has allowed many authorities to consider how to put in place measures to “build back better and greener.” Opportunities and challenges for environmental and tourism policies are summarized below.

Opportunities

- **Aligning policies.** Authorities have an opportunity to coordinate and align new policies to rebuild their critical tourism sectors in a way that fulfills multiple goals. This requires working a whole-of-government approach, working across relevant agencies and stakeholder groups such as tourism, environment, finance, and climate change.
- **Building back better and greener.** Rather than de-investing, some countries are seeing the pandemic as a reason to re-invest in environmental sustainability. The Jamaica Ministry of Tourism is investing in rural tourism and agro-tourism linkages. As part of its COVID-recovery Green Stimulus Initiative, Pakistan is launching its first institutional National Parks Service to better protect wildlife and biodiversity while creating conservation and tourism jobs (Khan 2020). The Colombian government announced a stimulus and recovery plan with emphasis on clean and sustainable growth, combatting climate change, and reforestation (Government of Colombia 2020). Many similar initiatives are being piloted including nature-based, resilience, and circular economy solutions.

A recent World Bank survey of World Travel & Tourism Council (WTTC) members, which represent some of the largest travel and tourism companies in the world, asked which sustainable tourism actions destinations should prioritize over the next two to three years. Eighty-five percent of operators rated reduced marine litter/plastics as important and 82 percent mentioned the need to improve solid waste management and improve resource efficiency.

- **Trends in more resilient and sustainable tourism.** With international tourism curbed, destinations are prioritizing and expanding domestic and regional tourism. Malaysia, Greece, Thailand, and Serbia are examples of countries that have announced subsidies or vouchers to promote domestic tourism, which is less exposed to international crises (UNWTO 2020). Tourists have also indicated interest in slow tourism (defined as relatively long travel within one destination) and nature-based tourism, which can direct more revenues toward biodiversity conservation. On the other hand, growth of tourism in natural areas need to be properly managed in order to avoid negative ecological impacts.

Challenges

5. **Policy reversals.** Concern about COVID-19 transmission on surfaces has led to the reversal or delay of policies to reduce single-use plastics at municipal, regional and national levels (including New York, Massachusetts, New Hampshire, and Maine in the U.S., U.K., Canada, Southern Australia, etc.) (Prata and others 2020). Additionally, worries about COVID-19 transmission has also led to the suspension of recycling programs in some areas. These policies could lead to increased plastics pollution in sensitive areas such as coastlines and beaches that are important for countries’ tourism sectors.
6. **Support for SIDS.** Small states, including SIDS, rely heavily on tourism, commodities, and remittances for income and are vulnerable to natural disasters, climate change, and emigration (Kose 2020). Very few COVID-19 stimulus packages have yet to contain blue recovery measures for impacted ocean workers, sectors such as tourism, and communities. Furthermore, as countries seek to quickly recover, investments into high-polluting sectors and the rollback of environmental standards may disrupt progress made towards ocean sustainability and climate change mitigation (Northrop

and others 2020). These policies and actions may make it harder for tourism to recover sustainably, while further exposing SIDS to natural hazards and climate change that threaten tourism and other sectors.

If environmental policies are rolled back under efforts to stimulate economic activity, this could impact the sustainability of fish stocks, which would affect tourism sectors that rely on them to supply food for tourists. There may be also be increased risk of illegal, unreported, and unregulated (IUU) fishing due to reduced enforcement. Pressures on small-scale fishers may encourage them to engage in IUU fishing as well. These pressures include social, economic, health, and environmental impacts related to reduced demand (e.g., from decline in tourism); port closures; loss of access to cold storage; loss of access to markets; and COVID-19 risks from the migratory nature of their work (Bennett 2020).

During the Great Depression in the United States in the 1930s, the Civilian Conservation Corps (CCC) was established as part of the New Deal Program. The CCC provided quick employment through conservation works on public lands to address the two challenges of unemployment and environmental degradation. Throughout its existence, the program provided work for 5 percent of the total United States male population, serving as the basis of immediate economic recovery. It 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 is credited with increasing visitors to national and state parks from 3.2 to 20.4 million over its nine years. Today, U.S. parks receive over 320 million visitors who spend an estimated \$21 billion in local gateway regions supporting more than 340,500 jobs, generating \$41.7 billion in economic output (Paige, quoted in World Bank 2020b).

Summary and Recommendations

COVID-19 has had immediate and short-term environmental impacts for the tourism sector, which is especially significant for countries that rely heavily on their natural capital, including for tourism. Positive and negative impacts are evident on environmental protection; biodiversity; air quality; water quality; global emissions; and plastics pollution and waste management – all of which have implications on the sustainability, suitability, appeal, and competitiveness of tourism destinations. Long-term impacts on environmental and tourism policies may also come into play, depending on the measures that are enacted at the local, national, and global level to combat COVID-19 and restart economies.

World Bank teams should consider the following in their tourism operations:

1. COVID-19 recovery policies, strategies, and budgets should be linked to strengthening environmental protection and management and avoiding rolling back progress in these areas. Investments in the development of sustainable and climate and disaster-resilient tourism infrastructure can create green jobs in the short-term, set the foundation for sector recovery, and reduce negative tourism impacts and emissions over the long term. Tourism investments should accelerate tourism plans for the transition to a greener, resource-efficient and low-carbon economy, ensuring a large diversity of tourism products to build resilience and prevent the dependency of resource-intensive forms of tourism.

2. Special attention should be paid to those destinations that are most at risk from declining tourism revenues and environmental and climate hazards, such as SIDS, coastal nations, and protected and conservation areas. See the report *Rebuilding Competitiveness: Tourism Response, Recovery and Resilience to the COVID-19 Crisis* for a risk/resilience scoring system developed by the World Bank Global Tourism Team.
3. New funding mechanisms will be needed that invest in sustainability and green and blue economy in order to support resource-constrained governments, including to unlock the value of nature and natural landscapes. These can include tailored investment instruments – such as green and blue bonds – that can catalyze commercial, impact, or philanthropic investing into landscapes or tourism destinations where there are potential carbon or biodiversity co-benefits.

In South Africa, the absence of tourism revenue from national park visitation and the consequent impact on the recurrent budget of the national parks administration have led to several innovative public-private partnerships to enable basic activities such as patrolling, road maintenance, and conservation management and research to continue. The most significant of these has been the issuance of a first-ever Wildlife Conservation Bond to cover the costs of managing two important black rhino habitats. This is a partnership between South African capital markets (the investors), the national park authorities (the stewards of the destinations), an independent private sector company (that will manage for results), and the government and the World Bank (the issuers of the Bond). The model replaces what would be public resources with privately raised finance to achieve conservation-related impacts. In this case, revenue from domestic tourism (a specifically targeted market segment) underpins the commercial returns.

4. Knowledge and resources on green COVID-19 and tourism recovery should be collected and shared with stakeholders to support and inform their rebuilding efforts.

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