Using the Mitigation Hierarchy for Tourism and Infrastructure Development in the Pacific Island Countries and Territories

Guidance note

The mitigation hierarchy is an iterative best-practice approach to limiting and managing negative impacts of tourism and associated infrastructure projects, helping to balance environmental and social needs with development priorities.

Tourism in the Pacific region – an overview

Tourism numbers are rapidly increasing in many Pacific Islands Countries and Territories. As well as building hotels, tourism development requires a suite of infrastructure upgrades such as airports, roads, ports and shops. Most tourists visit for the natural beauty of the coast and the climate, with significant numbers visiting for ecotourism (e.g. birdwatching, diving and hiking), sports (e.g. surfing and fishing) and culture (e.g. indigenous cultural practices and war relics). There is a clear business case and market for 'sustainable' tourism. The focus of many sustainability initiatives is the use of energy, water and solid waste during operations, with less consideration given to avoiding construction impacts during the planning and design of the development. However, significant reductions in impacts can be made during the early stage of project planning if an evaluation of environmental risks is undertaken and integrated in the design process.

What are the potential impacts of tourism and infrastructure development on biodiversity?

Direct impacts are directly linked to tourism development and activity, notably clearance of natural habitats for hotel construction. Other common direct effects include visitors degrading natural habitats and disturbing animals, water pollution and contamination and waste disposal.

Indirect impacts are those induced by tourism and tourism developments, such as in-migration – where people move to the area around a new hotel complex in the hope of jobs. More settlements and resources are needed to support the increased population, which leads to increased clearance for building materials, gardening and other small-scale agriculture, and increased hunting, fishing and gathering. Construction of new roads to remote beaches or hotels can also increase access to previously inaccessible land.

The potential impacts of tourism and associated infrastructure on biodiversity are summarised on the next page.

POSITIVE IMPACTS ON BIODIVERSITY

Tourism can benefit natural ecosystems by increasing the awareness of conservation issues and giving a business case for conserving species and ecosystems of interest to tourists. This business case can be especially powerful when local communities derive direct economic benefits from the tourism activity. Many tourists value and will pay a premium for environmental conservation activities.

Using the mitigation hierarchy to limit impacts of tourism projects on biodiversity

HABITAT LOSS

One of the major impacts of tourism on biodiversity and ecosystem services is clearing natural ecosystems for development, including land-reclamation, excavation and dredging, and coastal protection works. Tourism facilities are usually located on coasts which are often already under high pressure from utilisation by local communities and other existing development.

Construction of the Suva Foreshore Project, Fiji. Image © Pacific Building Solutions

HABITAT DEGRADATION

Tourism development can reduce habitat quality in several ways. Hotels consume fresh water which can be in short supply. They produce contaminated water which is often not treated adequately before discharging into the sea. Hotels and tourists generate solid waste including disposable plastics, which can be discarded into the environment.

Fiji's Momi Bay hotel.
Image © Marriott Hotels

SPECIES DISTURBANCE

Large numbers of tourists visiting coastal ecosystems and small islands can cause direct disturbance to animals – many seabirds and turtles are confiding but can be disturbed away from their nests, and turtles can collide with boats. Tourists commonly cause erosion and littering and can heavily impact areas with high visitation. Coastal developments with bright lights can prevent turtles from nesting.

INTRODUCTION OF INVASIVE SPECIES

Invasive (non-native) species are a threat to local ecology because they often out-compete or eat native species. Invasive plants can be introduced to tourism sites through construction activities or can be planted for landscaping. Invasive mammals such as feral cats and rats can be accidentally introduced to new islands or can increase in numbers by scavenging from hotel waste. If not managed properly, invasive species have the potential to extirpate local species. This risk is especially serious in islands, where local endemic species have limited natural defences against invasive species.

'Ecotourism' can involve very low-impact facilities. Near Kiunga, PNG. Image © Guy Dutson

What is the mitigation hierarchy?

0. Enhance Positive Impacts   1. Avoid   2. Minimise   3. Restore   4. Offset

As described in a separate Guidance Note, the mitigation hierarchy is a four-step tool used to limit the negative impacts of development projects and demonstrate a positive outcome for biodiversity. Steps 1, 2 and 3, **Avoid**, **Minimise** and **Restore**, are designed to reduce the significance and extent of residual impacts. **Offsets** (or Compensation) are a last resort, implemented only when the first three steps have been exhausted, and designed to achieve biodiversity gains and an overall positive outcome for biodiversity. An additional first step is to enhance any positive impacts.

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Why should tourism developments use the mitigation hierarchy?

Planning for sustainable tourism needs to recognise and protect the characteristics of the destination that attract visitors in the first place, which is most often a natural beach or island. An increasing number of hotels and resorts are seeking sustainability certification to meet the expectations of their guests. Some businesses have their own corporate commitments - for example, Marriott International's goals include a sustainability certification for all of its hotels, and 650 hotels will pursue LEED certification or equivalent by 2025. There are several certification standards available, mostly aiming to improve the operational sustainability in areas such as energy, water and waste. The Global Sustainable Tourism Council's criteria include "the organization supports and contributes to biodiversity conservation, including through appropriate management of its own property. Particular attention is paid to natural protected areas and areas of high biodiversity value. Any disturbance of natural ecosystems is minimized, rehabilitated and there is a compensatory contribution to conservation management".

In alignment with this criterion, the mitigation hierarchy applies an iterative process to reduce impacts through avoidance and minimisation measures. Impacts that cannot be avoided, minimised or restored are quantified to enable a new hotel or resort to understand its impacts and to develop an offset or compensation that can generate an equivalent gain in biodiversity. The mitigation hierarchy is also a funding requirement of the IFC, World Bank, and 94 other financial institutions in 37 countries that have adopted the Equator Principles[1].

Iterative application of the mitigation hierarchy in tourism planning

As a general rule, there are fewer options and higher costs associated with the later steps of the mitigation hierarchy, so particular emphasis needs to be given to avoidance and minimisation. Early and repeated application of the mitigation hierarchy helps to ensure that the residual impacts are as low/small as possible.

Some key mitigation options for impacts associated with tourism development are given on the next page.

More information:

- The Pacific Sustainable Tourism Network offers examples and tools to help sustainability
- IUCN's Business and Biodiversity program has guidelines and case studies for tourism businesses
- The book Sustainable Hotel Siting, Design and Construction is available online
- The Convention on Biological Diversity's Guidelines on Biodiversity and Tourism Development contain guidance for sustainable tourism
- The United Nations World Tourism Organization hosts a variety of information on sustainable tourism
- A Cross-Sector Guide by The Cross-Sector Biodiversity Initiative provides practical guidance on implementation of the mitigation hierarchy
- The Cross Sector Biodiversity Initiative Timeline tool is a framework to coordinate schedules of project development, biodiversity impact assessment and financing
- The Biodiversity Offset Design Handbook and Appendices by BBOP can guide the offset planning process

Specific to the PICTs region:

- Under the *Restoration of ecosystem services and adaptation to climate change (RESCCUE)* project, stakeholders have identified provisional roadmaps for strengthening mitigation hierarchy and offsets implementation in the region, based on a systematic review of the national offset policies and practices that exist to date.
- SPREP's Strengthening environmental impact assessment: Guidelines for Pacific Island Countries and Territories.

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Pacific Community Communauté du Pacifique

RESCCUE

[1] Equator Principles Association Members and Reporting (Aug 2018)

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Iterative application of the mitigation hierarchy in tourism planning

Stage of the mitigation hierarchy	1. AVOID	2. MINIMISE	3. RESTORE	4. OFFSET
Objective	**Select sites and design projects that avoid impacts to areas with important biodiversity**	**Minimise impacts through micro-siting and operational controls**	**Return temporary work areas to a natural state or stakeholder agreed land-use**	**Additional conservation actions to offset residual impacts and achieve a demonstrable biodiversity gain**
Approach	**Define study areas within the landscape for each new development** ↓ **Assess biodiversity values in study areas** ↓ **Evaluate environmental costs and benefits of alternative sites and design options** ↓ **Select option that avoids impacts**	**Undertake ground surveys in important biodiversity areas within the study area** ↓ **Use results to inform detailed project design and control measures** ↓ **Assess scale of potential impacts after avoidance and minimisation; If impacts cannot be managed, reassess options**	**Gather data prior to vegetation clearance on habitat type and condition** ↓ **Store top soil and source seedlings** ↓ **Undertake progressive restoration as disturbed areas are no longer required for construction** ↓ **Quantify residual impacts and assess if offsets are required**	**Assess the business case for offsets: some funders, corporates and certifiers have goals of No Net Loss on biodiversity; offsets can have good publicity and marketing value** ↓ **Select offset site(s) in partnership with land-holders** ↓ **Develop management plans and form partnerships to implement conservation actions**
Key actions	• If risks are identified that are environmentally or socially unacceptable, development should not take place ('**no-go**'). ⇒ Place infrastructure **outside** important sites such as old-growth forest, freshwater wetlands, estuaries, mangroves, seagrass beds, and coral reefs ⇒ Schedule operations to avoid impacts to sensitive species e.g. breeding season ⇒ Include roads and other associated infrastructure in the overall environmental impact plan	• Minimisation actions are needed during construction and once the development is operational. For example: ⇒ Physical controls e.g. barriers to prevention construction access and visitor access to sensitive areas such as wetlands or seabird or turtle nesting sites ⇒ Management controls e.g. limit the number of people visiting diving and snorkeling sites; checks to ensure eco-products are used throughout the hotel ⇒ Abatement controls e.g. treatment of waste-water to a standard suitable for drinking or bathing	• Restoration to achieve a natural vegetation state can be challenging. • Native species should be used to maximise restoration success. • Restoration in the Pacific Islands may be costly with reduced feasibility as there are few native plant species to choose between. • Key requirements for restoration: ⇒ A good information base, including detailed baseline data ⇒ Defined restoration goals and planning ⇒ Robust monitoring in partnership with other stakeholders	• Two types of action qualify technically as offsets: 1. Restore degraded natural areas close to the development by re-planting and controlling land-use 2. Avert the loss of high-quality natural areas close to the development by compensating land-owners for reducing their impacts to the area • Two types of action do not qualify as offsets but can be used to engage local stakeholders and guests: 1. Researching local plants and animals 2. Educating guests