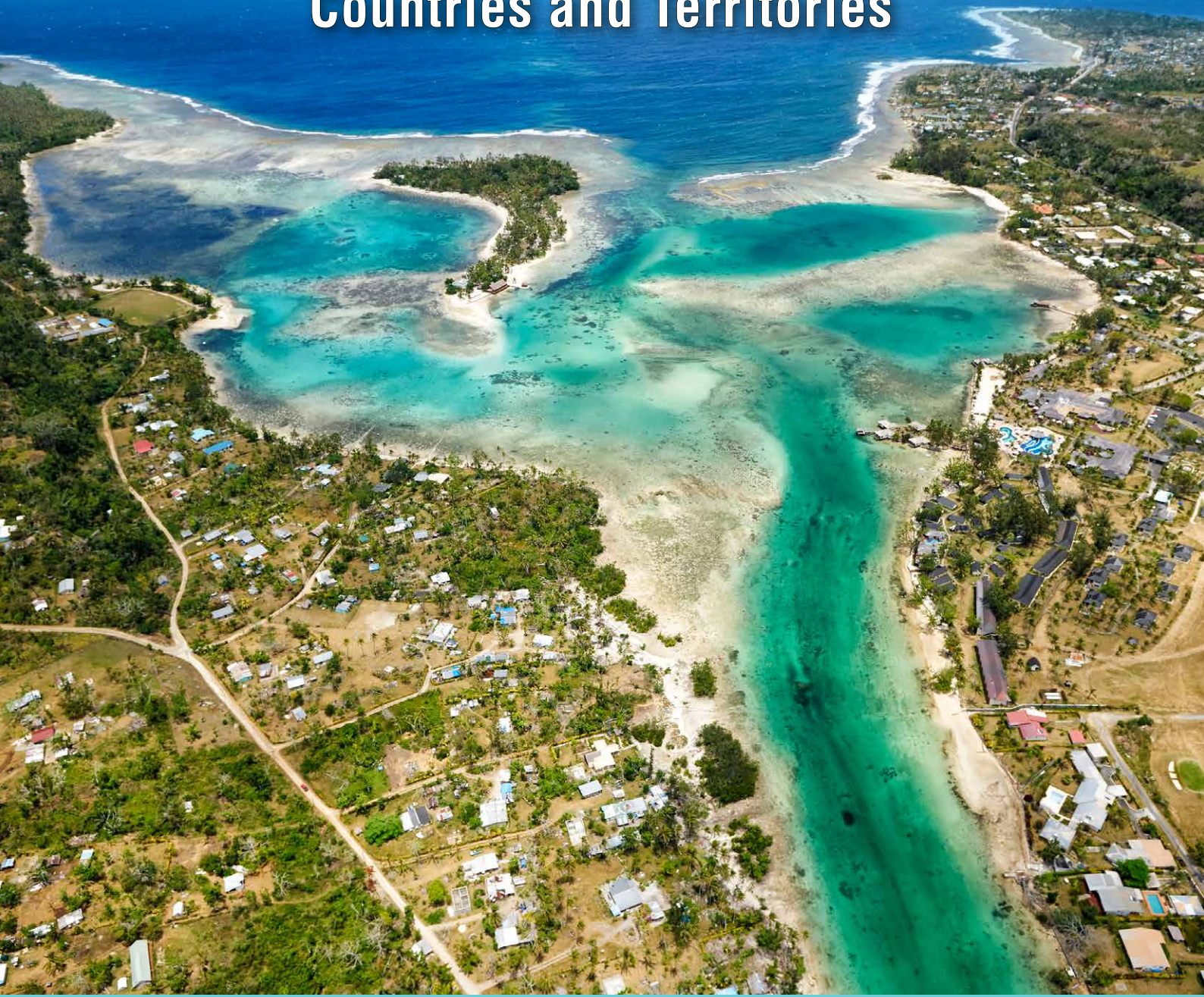


STRENGTHENING ENVIRONMENTAL IMPACT ASSESSMENT

Guidelines for Pacific Island Countries and Territories



SPREP
Secretariat of the Pacific Regional
Environment Programme



ACP MEAs 2

An Initiative of the African, Caribbean and Pacific Group of
States funded by the European Union



SPREP Library Cataloguing-in-Publication Data

Strengthening environmental impact assessment: guidelines for Pacific Island countries and territories. Apia, Samoa : SPREP, 2016.

60 p. 29cm.

ISBN: 978-982-04-0593-6 (print)
978-982-04-0594-3 (ecopy)

1. Environmental impact assessment – Oceania.
 2. Environmental impact analysis – Guide – Oceania.
 3. Environmental management – Monitoring & Reporting – Oceania.
- I. Pacific Regional Environment Programme (SPREP) II. Title. III. Series.

333.714

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Other photos: Unless otherwise acknowledged, all photographs were taken by SPREP staff.

An initiative of the African, Caribbean and Pacific Group of States funded by the European Union. This document has been produced with the financial assistance of the European Union and the United Nations Environment Programme. The views expressed herein can in no way be taken to reflect the official opinion of the European Union or the United Nations Environment Programme.

This publication provides general guidance on the environmental impact assessment (EIA) process. It is designed to be tested and revised over time based on experiences in Pacific island countries and territories, and the development and progression of EIA in the Pacific region. For specific direction and guidance SPREP member countries should refer to their national legislation or consult with an EIA specialist.



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*The Pacific environment, sustaining our livelihoods
and natural heritage in harmony with our cultures.*



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Acknowledgements

This publication has been developed following an extensive consultation process involving SPREP staff, SPREP member countries, regional and national experts, and partner agencies. The assistance, ideas and input provided by all contributors is gratefully acknowledged. A special thank you is expressed to government personnel who assisted with testing and validating sections of the document, and who shared their own EIA knowledge and experiences during EIA training workshops. Appreciation is also shown to the New Zealand Association for Impact Assessment for its unfailing encouragement and technical input throughout the drafting process.

Foreword

Environmental impact assessment (EIA) is the primary instrument for planning, assessing and managing development projects, to support sustainable and resilient development goals and green growth outcomes. The Secretariat of the Pacific Regional Environment Programme (SPREP) has a long history of leading EIA capacity-building across the Pacific region. For more than twenty five years SPREP has supported EIA awareness-raising and training programmes in member countries, and the publication of EIA guidelines and manuals. As the pace of development and urbanisation intensifies in our islands, the need for effective EIA processes becomes more urgent.

These regional EIA Guidelines represent an expanded and updated version of SPREP's original EIA Guidelines published in 1993. They deliver on SPREP Strategic Plan 2011-2015 target, Environmental Monitoring and Governance 1.1: *to develop Pacific-related models for environmental assessment*. The Guidelines aim to assist with the implementation of national EIA legal requirements and to promote best practice in EIA across the full range of projects and development sectors in the Pacific.

The regional EIA Guidelines complement other forms of SPREP EIA assistance such as the development and review of EIA legislation, delivery of in-country EIA training workshops, and provision of technical advice for different stages of EIA. The Guidelines will be subject to further revision as EIA thinking and processes advance.

SPREP gratefully acknowledges financial support from the European Union-funded ACP MEAs project delivered through the United Nations Environment Programme (UNEP), and from the Australian and New Zealand governments. SPREP is also thankful for technical input from partners such as the Asian Development Bank, Melanesian Spearhead Group, New Zealand Association for Impact Assessment, Pacific Community, The World Bank and UNEP. In addition, SPREP member countries must be acknowledged, for providing feedback on earlier drafts and sharing local insights during EIA training workshops.

I look forward to stronger EIA practices in Pacific island countries and territories, in line with these Guidelines and through the ongoing capacity-building efforts of SPREP and its partner agencies.



Mr Kosi Latu
Director General,
SPREP

Abbreviations

CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
EIA	Environmental impact assessment
EIS	Environmental impact statement
EMP	Environmental management plan
MARPOL	International Convention for the Prevention of Pollution From Ships
MEA	Multilateral environmental agreement
NGO	Non-government organisation
SEA	Strategic environmental assessment
SPREP	Secretariat of the Pacific Regional Environment Programme
ToR	Terms of reference
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United Nations Framework Convention on Climate Change

Glossary

Adaptation: in a climate change context, adaptation refers to anticipating the negative impacts of climate change and taking well-planned, early action to prevent or minimise the damage these impacts can cause; or anticipating positive impacts and taking advantage of opportunities that may arise.

Area of influence: the area affected by a development project, which is beyond the project footprint. It may be upstream and/or downstream of the project site and include the wider catchment, watershed, coastal/ocean zone, airshed or buffer zones; an off-site resettlement zone; and areas that are culturally significant or used for livelihood activities. The area of influence is determined by a project's resource requirements and the nature and magnitude of its impacts. Area of influence may vary across different development phases of a project.

Baseline: a description of pre-development or current environmental conditions.

Climate change: long-term changes in climate conditions, i.e. changes in the mean and/or the variability of a climate property such as precipitation, temperature or wind force. These changes persist for an extended period, typically a decade or longer. Climate change can influence and alter the scale, scope, frequency and intensity of disaster risks.

Cumulative impacts: changes in the environment, resulting from the combined, incremental effects of past, present and future human activities; environmental change processes (e.g. climate change); and physical events. Physical events can be of natural or human origin, and may include extreme weather events and natural or human-induced disasters.

Disaster: severe, adverse disruption to the normal functioning of a community, society or ecosystem due to hazardous events interacting with vulnerable social and/or ecological conditions. Can cause widespread human, material, economic and/or environmental losses.

Environment: encompasses natural and biophysical, social (people, culture, health, heritage, amenity) and economic aspects, and the relationships between these different aspects.

Environmental assessment: a term that covers both assessment processes referred to in this document, i.e. environmental impact assessment (EIA) and strategic environmental assessment (SEA).

Environmental hazard: an event or action that has the potential to cause significant impacts on a community, society or ecosystem. Environmental hazards can be natural (e.g. cyclone, flood, earthquake, tsunami, volcanic eruption, drought, landslide), human-induced (e.g. oil spill) or technological (e.g. infrastructure failure) in origin. They are not impacts (or disasters) in themselves but have the potential to cause them.

Environmental impact assessment (EIA): a two-way process for identifying and managing: (1) a development's potential impacts on the environment, and (2) the potential impacts of the environment on a development, i.e. the potential impacts that may arise from environmental hazards and environmental change processes, including climate change.

Environmental impact assessment report (EIA report) or environmental impact statement (EIS): the document prepared by the proponent (or their consultant) as part of the EIA process, which details the type of project, its timeframe and scale, likely impacts, risk assessment of key impacts, proposed impact mitigation measures (for negative impacts) and optimisation measures (for positive impacts).

Environmental management plan (EMP): a project-specific, written plan that describes all mitigation measures and monitoring and reporting actions to be undertaken by the proponent. The EMP includes a schedule and assigns responsibility to particular personnel for undertaking mitigation measures and monitoring and reporting on a project's environmental performance to regulatory authorities.

Green economy or green growth: economic development that is based on the efficient use of natural resources and energy, and which minimises greenhouse gas emissions, waste and pollutant outputs, biodiversity loss and environmental degradation.

Impact: a negative or positive change as a result of an action, activity or event. Refers to the impact of a project on the environment, as well as the impact of the environment on a project due to an environmental hazard or environmental change process. Examples of negative impacts include environmental degradation, loss of life or injury, property or infrastructure damage, and social unrest. Examples of positive impacts include environmental recovery and restoration, increased food security, property or infrastructure improvements, and increased local job opportunities.

Impact mitigation hierarchy: enhance positive impacts; avoid negative impacts; minimise negative impacts that cannot be avoided; rehabilitate or remedy negative impacts that cannot be minimised; and offset (or compensate for) negative impacts that cannot be remedied.

Mitigation: measures or actions undertaken by the proponent to address the impacts identified through the EIA process. Mitigation measures should follow the impact mitigation hierarchy (defined above) and be detailed in an environmental management plan.

Multilateral environmental agreement: an environment-related treaty, convention, protocol or other binding instrument between three or more states.

Project footprint: the land and/or ocean area occupied by project buildings, facilities, infrastructure or activities.

Proponent: an individual, company or government ministry/department/agency planning to undertake a development.

Resilience/resilient: the ability of a community or system (human and/or natural) to sustain itself, to respond to and recover from extreme events and disturbances, and to use extreme events and disturbances as an opportunity for renewal and positive transformation.

Risk: a measure of the consequences and probability (likelihood) of an impact. Risks arise from the interaction between environmental hazards and vulnerability.

Stakeholder: any person, organisation, institution or business who has interests in, or is affected by, a development issue or activity, including local community members and customary land/resource owners.

Strategic environmental assessment: a higher-level assessment process that can be used in three main ways: (1) to prepare a strategic development or resource use plan for a defined land and/or ocean area; (2) to examine the potential environmental impacts that may arise from, or impact upon, the implementation of government policies, plans and programmes; and (3) to assess different classes or types of development projects, so as to produce general environmental management policies or design guidelines for the development classes/types.

Vulnerability: the sensitivity of a development, human community or ecosystem to damage and loss resulting from a hazardous event or disturbance.

1.0 Introduction

Since the early 1990s the Secretariat of the Pacific Regional Environment Programme (SPREP) has been promoting the use of environmental planning and assessment processes amongst its member countries and territories. SPREP's approach to environmental planning and assessment has been part of a global programme for improving environmental management and supporting sustainable development. SPREP has been guided by regional and international multilateral environmental agreements (MEAs);¹ the needs of its members; the advice of its collaborators, donors and regional partners; and green economy, climate change adaptation and disaster risk management considerations, with the latter two considerations being amongst the most important sustainable development issues for the Pacific region.

Promotion of environmental assessment remains an important priority for SPREP, with a target in the organisation's *Pacific Regional Environment Programme Strategic Plan 2011–2015* (Strategic Plan) to develop Pacific-related models for environmental assessment. Additionally, recent surveys and training workshops with SPREP member countries have revealed a need for environmental assessment capacity-building, particularly in the area of environmental impact assessment (EIA). This publication, *Strengthening Environmental Impact Assessment: Guidelines for Pacific Island Countries and Territories* (EIA Guidelines), has been produced to meet the Strategic Plan target, to address identified EIA capacity-building needs, and to update and build upon previous environmental assessment publications prepared by, or on behalf of, SPREP.^{2,3}

¹ Relevant MEAs include the Convention for the Protection of the Natural Resources and the Environment of the South Pacific Region (Noumea Convention); the Agreement Establishing the South Pacific Regional Environment Programme; the Rio Declaration on Environment and Development; the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change.

² Publications include: *How to Assess Environmental Impacts on Tropical Islands and Coastal Areas: South Pacific Regional Environment Programme Training Manual* (Carpenter and Maragos 1989); *A Guide to Environmental Impact Assessment in the South Pacific* (Morgan 1993); *Environmental Impact Assessment Guidelines for Mine Development and Tailings Disposal at Tropical Coastal Mines* (Ellis 1996); *Adapting to climate change in the Caribbean and South Pacific regions. Guide to the integration of climate change adaptation into the environmental impact assessment (EIA) process* (Caribbean Community [CARICOM] Secretariat and South Pacific Regional Environment Programme 2004).

³ Environmental assessment publications can be accessed through SPREP's Pacific Environment Information Network: <http://www.sprep.org/Pacific-Environment-Information-Network/lessons-learned-and-best-practices-in-environment-management>

1.1 Target audience and aims

This publication is targeted at government officers who are responsible for administering or managing EIA, or who engage with the EIA process in other regulatory or development proponent capacities (e.g. officers working in areas such as planning, health, energy, water, transport, fisheries, agriculture, natural resources).

The EIA Guidelines are applicable to the full range of projects and economic development sectors in the Pacific and aim to support the implementation of current EIA legal requirements and to strengthen Pacific-based application of the EIA process by:

- emphasising the importance of assessing the potential impacts of development on the environment *and* the potential impacts of the environment on development, especially impacts related to climate change and disasters;
- providing a clear overview of the EIA process, supported by an EIA toolkit that includes templates and checklists for EIA screening, scoping and review;
- presenting an introduction to strategic environmental assessment, an approach that provides context for EIA;
- outlining considerations and recommendations for effective EIA;
- giving guidance to countries should they wish to develop their own national EIA guidelines; and
- linking the EIA process to MEAs.

The EIA Guidelines have been developed within the context of rapidly-changing Pacific land and seascapes. These changes are being driven by factors such as population growth; climate change; increasing urbanisation; and developments in Pacific-based economic sectors including fisheries, forestry, manufacturing, mining, tourism and transport. Developments in different economic sectors have the potential to provide substantial benefits for Pacific island countries and territories by opening up new livelihood opportunities; facilitating access to international markets and foreign exchange; improving national and regional transport services/networks; and increasing the provision of goods and services that can raise standards of living. However, if the impacts of development are managed poorly and climate change and disaster risks are not factored into planning processes, these same developments can negatively affect Pacific lands, seas and lifestyles through natural habitat destruction and loss; generation of waste and pollution; release of greenhouse gas emissions; freshwater depletion; spread of invasive plants and animals; intrusion upon village communities and their lifestyles; generation of social tension; loss of livelihoods; damage to cultural heritage sites; and damage to or loss of physical infrastructure (e.g. buildings, bridges, roads).

Environmental impact assessment is a proactive planning and decision-making process that has an important role to play in identifying impacts, assessing risks, and evaluating the costs and benefits of development projects⁴ *before* they

are implemented. Environmental impact assessment aims to avoid adverse and costly changes in the environment and to development projects themselves, so as to strengthen positive development outcomes and resilience.



Coastal zone developments require comprehensive and rigorous EIA, especially if they involve land reclamation and the clearing of mangroves and other important coastal habitats. Photo: Carlo Iacovino

⁴ Throughout the EIA Guidelines the terms 'development project', 'development' and 'project' are used interchangeably.

2.0 Important concepts

2.1 Environmental impact assessment and strategic environmental assessment

With reference to foundational work led by the United Nations Environment Programme,⁵ SPREP defines two environmental assessment processes,⁶ applied at different scales (Figure 1):

- Environmental impact assessment (EIA), project scale** – a two-way process for identifying and managing: (1) a development's potential impacts on the environment, and (2) the potential impacts of the environment on a development, i.e. the potential impacts that may arise from environmental hazards and environmental change processes, including climate change. Examples of development projects that may be subject to EIA include a new wharf, tourist resort, airport upgrade, renewable energy project, fish cannery, mining or logging operation.
- Strategic environmental assessment (SEA), policy, plan or programme scale** – a higher-level process that can be used in three main ways: (1) to prepare a strategic development or resource use plan for a defined land and/or ocean area; (2) to examine the potential environmental impacts that may arise from, or impact upon, the implementation of government policies, plans and programmes; and (3) to assess different classes or types of development projects, so as to produce general environmental management policies or design guidelines for the development classes/types. All three types of SEA aim to create a context for sustainable and resilient development and to avoid or minimise cumulative impacts.

As mentioned in section 1.0, there is strong demand for EIA capacity-building amongst SPREP's members; hence, these Guidelines are focused on strengthening the EIA process. A brief introduction is provided to SEA (section 4.5), to illustrate the relationship of the EIA process to higher-level environmental assessment and planning. Altogether, the two types of environmental assessment, EIA and SEA, serve to inform planning and decision-making from the local to the national level, across different types of economic activity, and across the public and private sectors.

More specifically, SEA can establish a sustainable and resilient development context for EIA by identifying what forms of development are environmentally sound and appropriate; pinpointing locations where developments are/are not permissible; stipulating desired types and characteristics of developments; and identifying broad environmental management measures that need to be followed. For example, as shown in Figure 2, a Tourism Development Plan SEA might produce guiding principles and standards to help beachfront resorts avoid the impacts of climate change and natural disasters e.g. specify cyclone-resilient building codes and distances at which buildings and infrastructure need to be setback from the coastline. A Tourism Development Plan SEA might also identify other critical tourism industry issues that need to be considered during an EIA for a new resort, e.g. minimisation of groundwater drawdown; liquid/solid waste management; generation of training and employment opportunities for locals; minimisation of impacts on village lifestyles and culture from increasing tourism arrivals; protection of visual amenity; and traffic management.

⁵ Sadler B. and McCabe M. (eds). 2002. Environmental Impact Assessment Training Resource Manual. Geneva: United Nations Environment Programme.

Abaza H., Bisset R. and Sadler B. 2004. Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach. Geneva: United Nations Environment Programme.

⁶ The United Nations Environment Programme promotes a third type of environmental assessment, Integrated Environmental Assessment (IEA), which links the investigation of environmental states and trends with policy analysis. More specifically, IEA seeks to understand what is happening to the environment and why; what the consequences are for the environment and for humans; what actions or responses need to be taken to address the consequences; and how effective the actions and responses are likely to be. IEA is not addressed in these Guidelines because they are primarily focused on EIA capacity-building; however, IEA is being partially addressed through SPREP's State of the Environment reporting work with member countries.

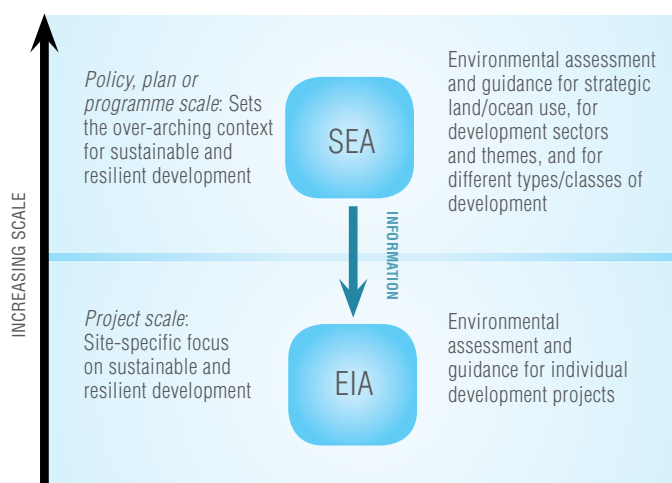


FIGURE 1 Two environmental assessment processes, applied at different scales. The SEA process can help to inform the EIA process.

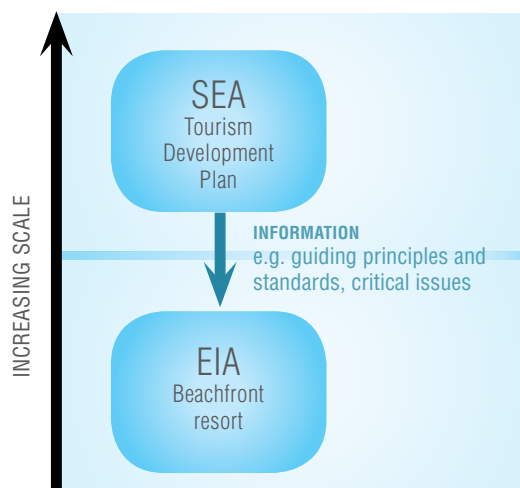


FIGURE 2 The SEA process can establish a context for sustainable and resilient development, which in turn, informs the EIA process.

2.2 'Environment' in environmental assessment

EIA legislation in Pacific island countries and territories typically defines 'environment' to include natural and biophysical, social (people, culture, health, heritage, amenity) and economic aspects, as well as the relationships between these different aspects. This broad, holistic definition is particularly important in the Pacific context, with extensive customary land ownership and direct linkages between community livelihoods, subsistence lifestyles, natural resource conditions and sustainable and resilient development. The EIA Guidelines use the term 'environment' in line with this broad definition; i.e. references to 'environment' and 'environmental' encompass social and economic considerations.

Figure 3 provides examples of some aspects of the environment that may be examined during the application of EIA and SEA in Pacific island countries and territories. It is important that environmental assessments are individually customised to address those aspects that are of most relevance to stakeholders associated with a particular development (EIA), or to a policy, plan or programme for development (SEA). Customisation usually occurs during the scoping phase and results in the preparation of terms of reference (ToR) for an environmental assessment (see sections 4.3 and 4.5). Environmental assessments that are not guided by ToR are likely to be unnecessarily long and complex, and may provide limited useful information to inform government's decision-making process.

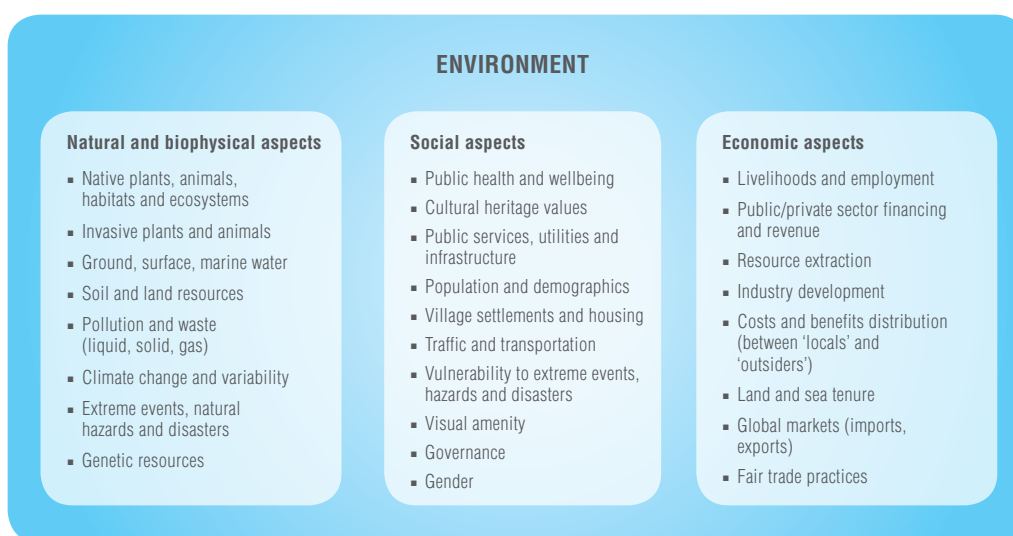


FIGURE 3 Examples of different environmental aspects that may be addressed in EIA and SEA. Some of the natural and biophysical aspects arise from, or are linked to, human activities.

3.0 History of environmental impact assessment

EIA was first formally applied in the United States of America (USA) in 1970, with an aim of reviewing the environmental implications of proposed government developments.⁷ From the late 1980s onwards EIA awareness and application began to be widely promoted in regional and international multilateral environmental agreements (MEAs), to which many SPREP members are party, such as the Convention for the Protection of the Natural Resources and the Environment of the South Pacific Region (Noumea Convention); the Rio Declaration on Environment and Development (Rio Declaration); the Convention on Biological Diversity (CBD);⁸ and the United Nations Framework Convention on Climate Change (UNFCCC) (Box 1). In the years that have followed, EIA has been adopted and legislated by most countries around the world, and used to assess both public and private development projects.

In the Pacific, project-scale EIA was initially introduced in association with projects funded by the Asian Development Bank and The World Bank. During the 1990s and 2000s, Pacific countries started to incorporate EIA into their national environmental policies and legislation. SPREP helped to facilitate the uptake of EIA by releasing educational publications and providing training and hands-on assistance (Box 2). All Pacific island countries, with the exception of Nauru, now have legislation in place that provides substantive provisions for EIA application (Appendix 1). However, despite the widespread adoption of EIA, a number of countries are still learning how to use the tool to maximum effect; especially within the context of staffing, financial and technical resource constraints; and in terms of the need to comprehensively assess and address the social impacts of development and the potential impacts the environment may have on development.

BOX 1 Specific reference to EIA in MEAs

Noumea Convention (1986), Article 16: Environmental Impact Assessment 1. The Parties agree to develop and maintain, with the assistance of competent global, regional and subregional organisations as requested, technical guidelines and legislation giving adequate emphasis to environmental and social factors to facilitate balanced development of their natural resources and planning of their major projects which might affect the marine environment in such a way as to prevent or minimise harmful impacts on the Convention Area.

Rio Declaration (1992), Principle 17: Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Rio+20, The Future We Want (2012), 168: We also commit to enhance actions to protect vulnerable marine ecosystems from significant adverse impacts, including through the effective use of **impact assessments**.

CBD (1992), Article 14: Each Contracting Party, as far as possible and as appropriate, shall: (a) Introduce appropriate procedures requiring **environmental impact assessment** of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures.

UNFCCC (1992), Article 4: All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall: (f) Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example **impact assessments**, formulated and determined nationally, with a view to minimising adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change.

⁷ Morgan R.K. 1993. A Guide to Environmental Impact Assessment in the South Pacific. Apia, Western Samoa: South Pacific Regional Environment Programme.

Abaza H., Bisset R. and Sadler B. 2004. Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach. Geneva: United Nations Environment Programme.

⁸ Voluntary guidelines on biodiversity-inclusive environmental impact assessment have been produced under the CBD, see: <http://www.cbd.int/decision/cop/default.shtml?id=11042>



Poorly managed development can impact on community lifestyles and livelihoods, including access to and use of natural resources. Photo © Stuart Chape

BOX 2 SPREP's EIA work in the Pacific region

Since the late 1980s SPREP has provided EIA capacity-building and technical assistance for its members. This document builds upon this long-running assistance programme, along with other SPREP activities such as the:

- development and review of EIA legislation;
- delivery of in-country EIA training workshops, tailored to meet individual country needs;
- provision of independent advice and input to government agencies for different stages of the EIA process e.g. project screening, terms of reference preparation, review of EIA reports, and development of environmental management plans and project approval conditions;
- creation of the online Pacific Network for Environmental Assessment (see Box 5); and
- provision of input into the Pacific Islands Regional Environmental Management Framework for Deep Sea Minerals Exploration and Exploitation, developed by the SPC-EU Deep Sea Minerals Project.

SEA emerged in the middle to late 1980s as a higher-level environmental impact assessment process that aimed to address the increasing complexity of environmental issues; to promote consideration of the environment at every level of government planning and decision-making; and to provide a strategic framework to support EIA application. SEA is a tool that is constantly evolving, being adapted and applied in modified ways to suit different policy and planning contexts in different parts of the world.⁹ A number of countries now have formal policies or laws in place that provide for the application of SEA e.g. European

Union member states, Australia, Canada.¹⁰ SEA is yet to be widely recognised in the Pacific but examples of its application include: *Strategic Environmental Assessment (SEA) Report: Neiafu Master Plan Vava'u, Kingdom of Tonga* and *A Strategic Environmental Assessment of Fiji's Tourism Development Plan*.^{11,12} It will be important for future SEAs in Pacific island countries and territories to consider how environmental hazards and environmental change processes are likely to affect the implementation of government policies, plans and programmes, so as to establish a framework for resilient development.



SPREP's in-country EIA training workshops build EIA knowledge and capacity across the Pacific region. Photo: Melanie Bradley

⁹ Dusik J. and Xie J. 2009. Strategic Environmental Assessment in East and Southeast Asia. A Progress Review and Comparison of Country Systems and Cases. Washington D.C.: The World Bank.

¹⁰ Jackson T., Kelly A. and Williams P. 2008. Comparison of strategic environmental assessment in New South Wales and Scotland. Proceedings for the 28th Annual Conference of the International Association for Impact Assessment, Perth Convention Exhibition Centre, Perth, Australia. <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1175&context=creartspapers>. Accessed 15 March 2016.

¹¹ Onorio K. and Morgan R.K. 1996. Strategic Environmental Assessment (SEA) Report: Neiafu Master Plan Vava'u, Kingdom of Tonga. Apia, Samoa: South Pacific Regional Environment Programme.

¹² Levett R. and McNally R. 2003. A Strategic Environmental Assessment of Fiji's Tourism Development Plan. World Wide Fund for Nature. http://api.commissiomer.nl/docs/os/sea/casestudies/fiji_tourism_development_plan_0305_wwf.pdf. Accessed 15 March 2016.



Sand and gravel are often important raw materials for new developments, however, poorly managed sand and gravel extraction can affect sensitive coastal environments. Photo: Pascale Salaun

4.0 Environmental impact assessment in practice

4.1 What is the EIA process?

EIA is the primary, proactive decision-making process available for the environmental assessment and management of individual developments. Its application is supported and legislated in most Pacific island countries (Appendix 1). EIA is used to identify, predict and assess the impacts associated with individual development projects *before* implementation, in other words, it is used early in the design phase before project construction and operation. Effective EIA focuses on addressing both the negative and positive impacts likely to arise from a proposed development and it identifies mitigation measures to enhance the positive and to avoid, minimise, rehabilitate or compensate for the negative impacts. Positive impacts could include increased taxes and revenue for government; increased employment and training opportunities for local residents; or provision of improved infrastructure such as a new wharf, bridge or road. Negative impacts might include the production of liquid waste and pollution of local waterways; vegetation clearing and destruction of natural habitat and loss of native species; increased traffic volume and congestion on local roads; drawdown of local water supplies, threatening water security; and increased dust and noise, affecting the health and amenity of local residents.

EIA is also an increasingly important tool for examining the potential impacts of the environment on development projects, including impacts arising from climate change, climate variability and disasters, and for identifying appropriate adaptation or risk reduction measures to avoid or mitigate these impacts. The EIA process, therefore, is applied in two ways, to assess and address: (1) a development's impacts on the environment; and (2) the environment's impacts on a development.

Two important outcomes of the EIA process are: (1) the selection of an optimal development site and/or operational design; and (2) the preparation and implementation of an environmental management plan (EMP) that includes mitigation measures for addressing the identified, potential impacts; which stipulates environmental performance standards the proponent is expected to meet; and which establishes a framework for measuring, monitoring and reporting on environmental performance over the lifetime of a development, to promote the achievement of good environmental outcomes (see section 5.4).

The overall goals of the EIA process are to:

- enhance or strengthen positive development impacts;
- avoid, minimise, rehabilitate or compensate for negative development impacts; and
- reduce vulnerability to environmental hazards and environmental change processes.

4.2 Why should Pacific island countries and territories use the EIA process?

Most SPREP member countries and territories have EIA legislation, thus, EIA is a compulsory part of their development planning and assessment processes. In the Pacific the EIA process is commonly applied or triggered as a legal requirement for gaining development approval, or at the request of funding agencies and financial lending institutions who seek to encourage sustainable and accountable development.

There are six key benefits that can arise from the effective use of EIA – for government, proponents and the community. These benefits are outlined below.

1. Early identification of environmental constraints and impacts

The EIA process promotes early identification of environmental constraints and impacts and encourages project design modifications to be undertaken to address the constraints and impacts. EIA can result in an improved project design that is better suited to both the local environment and to project beneficiaries; that supports project sustainability and resilience; contributes to smoother project construction and operation; and allows for the avoidance of unnecessary expenses e.g. environmental fines, environmental clean-up or remediation costs. When a project is well-suited to the environment, when its vulnerability to hazards and environmental change is minimised, and when it is operating efficiently and effectively, a proponent is likely to gain the greatest possible value from project investment, while government and the community are likely to gain the greatest possible value from project development.

2. Early identification and improved calculation of project costs

By placing emphasis on detailed project planning and design, the EIA process allows proponents to identify and be clear about construction, operational and closure/rehabilitation costs (where relevant), before a project gets underway. This can assist with the budgeting and prioritisation of project expenditures, and help with avoidance of finance or budgetary shortfalls, construction delays, and budget overruns later in the development process.

3. Provision of clear procedural guidelines

The EIA process, when applied in line with a country's EIA legislation, provides clear procedural guidelines for government, proponents and the community. It supports rigorous and consistent impact assessment, transparent decision-making and good governance.

4. Provision of a level of certainty for all stakeholders

EIA can provide a level of certainty for all stakeholders because it outlines environmental performance and management standards that must be met by the proponent. In other words, proponents know what levels of performance and management they are expected to adhere to; government knows what levels of performance and management it must monitor; and the community knows the performance and management conditions on which development consent has been granted.

5. Fostering of social acceptance of a project

If the EIA process is participatory and inclusive of local stakeholders, including the directly affected community and land/resource owners, it can help to foster social acceptance of a project. Proponents are more likely to avoid major objections to their project, as well as delays in project implementation or disruptions to project operation, when the EIA process invites stakeholder participation in development planning and assessment, and requires proponents to recognise and address stakeholder concerns.

6. Demonstration of commitment to national policies and legislation and regional/international MEAs

Effective use of EIA allows governments to show they are meeting their environmental governance commitments under national environmental policies and legislation, and also under regional and international MEAs. This is because EIA encourages the inclusion of matters such as waste management and pollution control, biodiversity conservation, sustainable land management, and climate change and disaster risk management, in development assessment and decision-making. If these core matters are effectively addressed through EIA, governments may be more likely to attract smart investment – especially investment that supports sustainable and resilient development.

4.3 Step-by-step EIA process

The EIA process in Pacific island countries is typically administered by the environment ministry or department, and it is one part of the broader development approval process. Development proponents may need to obtain approvals under other relevant legislation alongside approval via the EIA process, before a development permit or licence is issued by the final ‘approval authority’ or ‘determining authority’. The final approval authority may be the Minister for environment or it may be another Minister, depending on the type of development under assessment and the distribution of legal responsibility within a country.

A generic EIA process is described step-by-step in Figure 4 and Table 1. It is important to refer to the legislation and regulations of individual countries for specific direction on how EIA should be conducted – including the types of developments that are subject to EIA; required EIA steps and procedures; EIA process timeframes; and the roles, authority and responsibilities of government ministers, government agencies, development proponents and other stakeholders. Using these EIA Guidelines as a reference point, countries are encouraged to develop their own EIA flow-charts and step-by-step process descriptions to provide clear, nationally-relevant guidance for government officers working in EIA.

In practice, the level of effort committed to the EIA process should reflect the type of development project that is under assessment, its size and location, and its potential impacts and risks. In other words, the EIA process should be customised for each project proposal, with an objective of achieving a better environmental outcome rather than performing a ‘tick-the-box’ exercise. Some Pacific island countries have provisions for preliminary or initial EIA and for comprehensive or full EIA, which allows for EIA customisation.

BOX 3 Distinction between EIA and EIA report/Environmental impact statement (EIS)

EIA: the *process* followed by government agencies, the proponent and stakeholders to assess the potential environmental impacts arising from, and the likely impacts of the environment on, development projects. The EIA process is also concerned with identifying, monitoring and reporting on mitigation measures that are aimed at reducing negative impacts, enhancing positive impacts and improving project resilience.

EIA report/EIS: the *document* prepared by the proponent (or their consultant) as part of the EIA process, which details the type of project, its timeframe and scale, likely impacts, risk assessment of key impacts, proposed impact mitigation measures (for negative impacts) and optimisation measures (for positive impacts). In some countries the document is called an EIA report while in others it is called an environmental impact statement (EIS). Throughout these Guidelines it is referred to as an EIA report. The EIA report is reviewed and commented on by government agencies, the local community and other interested stakeholders.

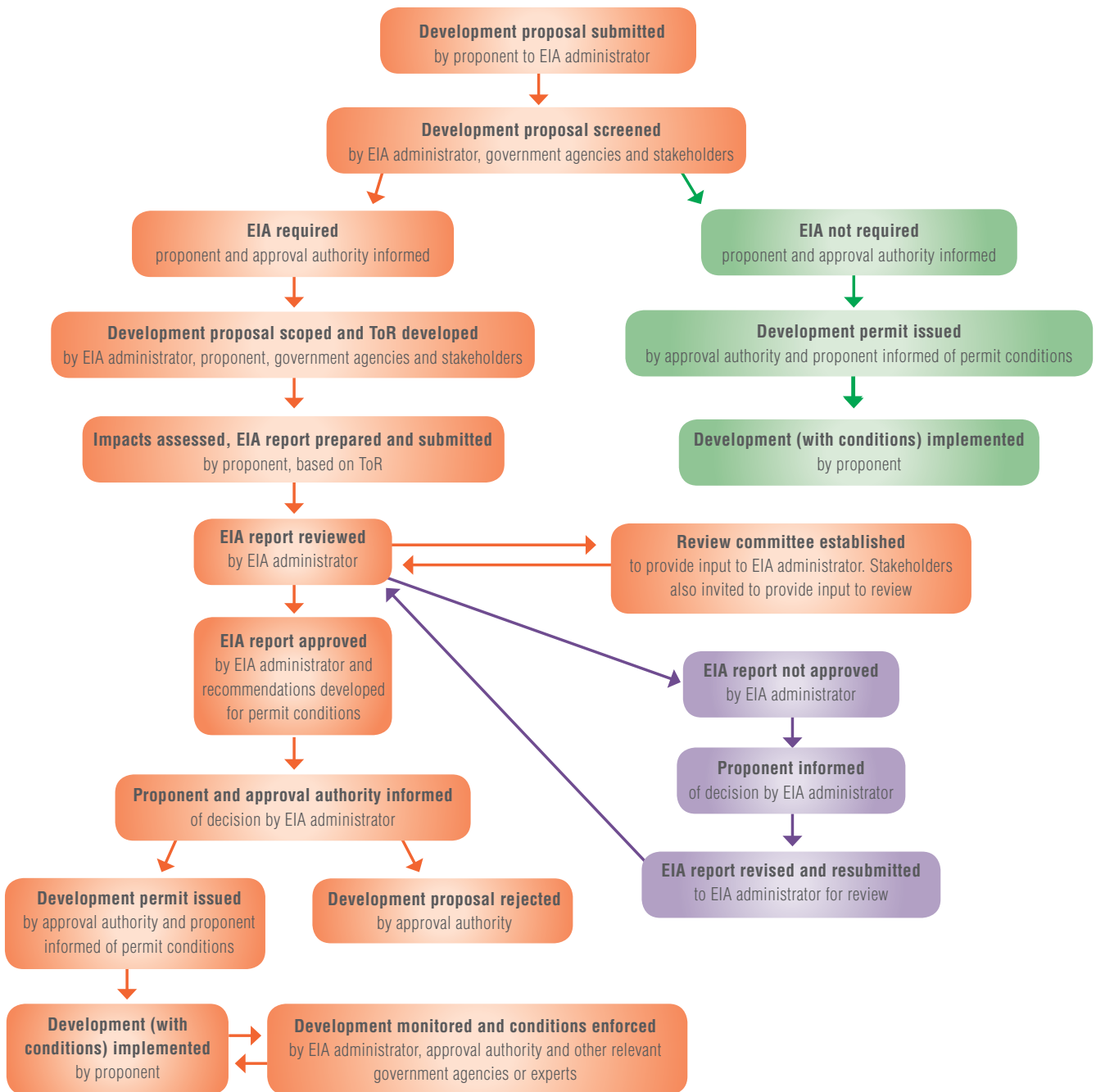


FIGURE 4 Outline of a typical EIA process, colour-coded to highlight the different paths that can potentially be followed. The term ‘stakeholders’ includes the local community and customary land/resource owners.

TABLE 1 Step-by-step EIA process

STEP IN PROCESS	DESCRIPTION
DEVELOPMENT PROPOSAL SUBMITTED	<ul style="list-style-type: none"> • A typical EIA process begins with the proponent submitting a development proposal to government, usually to the EIA administrator. • The proposal should outline the type, scale and location of the development; the proposed development timeframe (including construction, operation, and closure/rehabilitation, where relevant); known or potential impacts the development will have on the environment; and potential impacts the environment will have on the development. • The initial proposal provides an overview rather than comprehensive details. It should be regarded as a 'work in progress', to be progressively expanded upon, modified and improved as a result of EIA feedback and investigations.
DEVELOPMENT PROPOSAL SCREENED Refer to Tool 1: EIA screening checklist	<ul style="list-style-type: none"> • Screening is the preliminary assessment of a development proposal to determine if an EIA is required. • It is usually led by the EIA administrator in consultation with other government agencies, local communities, local land/resource owners and other stakeholders where relevant, and where consultation is permitted under legislation. • In some countries this step may involve the proponent preparing and submitting a Preliminary Environmental Impact Assessment or a Preliminary Environmental Assessment Report to the EIA administrator. • The EIA administrator's screening decision is usually made on the basis of answers to a set of standard questions that evaluate the size, scope, technical complexity, physical/environmental location, social setting of a development, and any relevant legal matters. See Tool 1 for a screening checklist with example questions. • During screening it is important to consider if the development's potential impacts on the environment and the potential impacts of the environment on the development are likely to be significant, and if they will require further investigation. • It is important the EIA administrator is familiar with the proposed location for the development, and the communities, climate change and disaster risks most closely associated with that location, to ensure that screening accounts for locally-significant issues. • Sometimes EIA administrators can refer to a list of 'development activities' or 'activity classes' prescribed under regulation, to help them determine which types of development should be subject to the full EIA process.
EIA REQUIRED or	<ul style="list-style-type: none"> • Following screening the EIA administrator informs the proponent and approval authority about the course of EIA action to be taken. If an EIA is deemed necessary, the next step is scoping.
EIA NOT REQUIRED	<ul style="list-style-type: none"> • If an EIA is not required the approval authority may issue a permit or licence for the development to go ahead. The approval authority may also stipulate environmental management conditions that need to be followed as part of the permit. • Once the permit is received by the proponent they can action the development. • The development proposal should be disclosed to the public.
DEVELOPMENT PROPOSAL SCOPED AND TERMS OF REFERENCE DEVELOPED Refer to Tool 2: Terms of reference template	<ul style="list-style-type: none"> • Scoping is about determining the key issues and impacts that need to be addressed in an EIA report, and the range of potentially interested or affected people/groups. • Scoping is led by the EIA administrator with the support of other government agency staff, the proponent and relevant stakeholders. Regional organisations with specialist knowledge may also be called on to provide assistance. Through involving multiple stakeholders in scoping, the EIA administrator can be more confident that the EIA process will address all key issues. • The outcome of scoping is a set of terms of reference (ToR) that outline the required content and provide advice on the format of an EIA report (see Tool 2 for a ToR template). • Typically, a draft ToR document is first developed by the EIA administrator and/or proponent, and this is reviewed by the approval authority and other relevant stakeholders before being finalised. • Sometimes the EIA administrator may hire a consultant to develop the ToR, especially for developments that are large, technically complex, and/or novel. Depending on legislative provisions, the costs associated with engaging external consultants for EIA scoping (and other stages of the EIA process) may need to be paid for by the proponent or they may be covered by government. • During scoping it is useful to consider objectives and targets within relevant government policy documents (e.g. national environmental management strategies, national sustainable development plans, climate change adaptation plans or joint adaptation and disaster risk plans, strategic land use plans), so the EIA process is directly linked with broader-scale environmental planning. • It is important clear ToR are developed so the proponent understands what they must cover in the EIA report and so it is not 'cluttered' with unnecessary information that provides little detail about the most important issues. • Clear ToR can also guide the EIA administrator when they are reviewing the adequacy of a proponent's EIA report, and they may be an important point of reference if a legal challenge is made at later stages of the EIA process, or after a development commences.

STEP IN PROCESS	DESCRIPTION
<p>IMPACTS ASSESSED, EIA REPORT PREPARED AND SUBMITTED</p> <p>Refer to Tool 4: Risk assessment for EIA reports – an example approach</p>	<ul style="list-style-type: none"> • The content of an EIA report is based on a comprehensive assessment of a development's potential impacts on the environment and the potential impacts of the environment on the development. The proponent should consider and report on suitable design solutions and mitigation measures that can effectively address the identified impacts. Impact assessment/project design/mitigation should be an iterative process, whereby design solutions and mitigation measures are reviewed and adjusted in consultation with government and stakeholders, until all significant impacts have been addressed. • The EIA report is often prepared on behalf of the proponent by a consultant or a multidisciplinary consultancy team, especially in the case of large-scale and/or complex developments (e.g. an open-cut mining operation; a new harbour or port development; a new landfill facility). With smaller developments the EIA report may be prepared in-house by staff with relevant technical expertise (e.g. a government transport agency might prepare the EIA report for a new bridge or road). • It is important that appropriately qualified personnel are engaged to undertake the impact studies and to prepare the EIA report, so that high EIA standards are maintained and all key impacts and suitable mitigation measures are identified. If the proponent is hiring consultants to prepare their EIA report they should give careful consideration to the type(s) of expertise they require e.g. a biologist to investigate impacts on plants and animals; a social scientist to engage and consult with local communities and to determine social impacts; a hydrogeologist to assess impacts on groundwater; an environmental engineer to evaluate and determine the suitability of different project design options. • Communication between the proponent and the EIA administrator is important during report preparation to help ensure the document adequately addresses the ToR. The proponent should also engage and consult with stakeholders to ensure they address the stakeholders' particular issues and concerns, which may be additional to the topics listed in the ToR. • The EIA report should have a clear focus and structure; present a comprehensive assessment of impacts; identify data sets and sources used in the assessment; and provide recommendations on how and where to improve the development; so as to support government's decision-making process. • Issues, topics and themes typically covered in an EIA report include: <ul style="list-style-type: none"> – a detailed outline of the development activity across its full life cycle, from construction to operation, through to decommissioning, closure and rehabilitation (if appropriate); – a description of the baseline environment, i.e. the existing environment. This description should be relevant and specific to the development's footprint and area of influence, rather than be a broad and generalised description of the wider environment; – the purpose of and need for the development; – consideration of possible development alternatives, i.e. different location, processing, design and scheduling options; – prediction of the nature and magnitude of impacts likely to result from the development; – assessment of potential impacts of the environment on the development; – a risk assessment that evaluates the consequence, likelihood and significance of each identified impact and which helps to determine which impacts need to be prioritised for environmental management (see Tool 4 for an example risk assessment approach); – a draft environmental management plan that details mitigation measures to enhance positive impacts and to avoid, minimise, rehabilitate or compensate for negative impacts; – demonstration of compliance with relevant government legislation, regulations and policies, including customary laws; – an overview of stakeholder consultation undertaken during the development of the EIA report. This overview should also describe the actions or measures the proponent will take (or has taken) to address concerns raised by stakeholders; – a list of all persons who prepared the EIA report; and – a copy of the ToR that guided the preparation of the EIA report. • The EIA administrator may also request that the EIA report include an assessment of how the proposed development aligns with international agreements, covenants or treaties (i.e. MEAs) to which the government is a signatory.

STEP IN PROCESS	DESCRIPTION
<p>EIA REPORT REVIEWED</p> <p>Refer to Tool 3: EIA report review template</p>	<ul style="list-style-type: none"> • The proponent submits the EIA report to the EIA administrator for review. By this stage of the process the EIA report has generally undergone a series of revisions so that it is a near complete document. Sometimes additional information or clarification may be requested from the proponent, to enable a thorough review of all aspects of the development proposal. • EIA report review is led by the EIA administrator who will often establish a committee to help them undertake the task (see section 5.2). The review step typically involves: <ul style="list-style-type: none"> • evaluating if the EIA report is complete and accurate, if it adequately addresses the ToR, uses appropriate impact assessment and predictive tools, and has arrived at fair conclusions; • reviewing impacts likely to arise from the development and assessing the adequacy of proposed mitigation measures; • considering the 'residual' impacts that will remain after mitigation measures have been implemented, and whether these residual impacts are deemed acceptable by affected stakeholders; • determining what monitoring and reporting will be required once the development gets underway, to establish whether it is achieving environmental compliance; and • considering relevant national or local policy documents (e.g. national environmental management strategies, national sustainable development plans, climate change adaptation plans or joint adaptation and disaster risk plans, strategic land use plans), to ensure the proposed development is aligned with broader planning and policy frameworks. • EIA report review can be assisted by the use of an evaluation sheet that lists criteria from the screening and scoping steps and includes questions about key environmental impacts and issues. The evaluation sheet can also have a response column for reviewers to write their judgements and opinions about different sections of the EIA report (see Tool 3). • A timeframe for the review period is normally specified in legislation and it is important this is followed so the EIA process runs smoothly. • The local community and other stakeholders should be given an opportunity to review the EIA report and to submit comments to the proponent, the EIA administrator and/or the review committee, within the specified timeframe. • It is recommended the EIA administrator asks the proponent to publish the EIA report on the proponent's website, and to provide a soft copy and a minimum of five hard copies. The hard copies can be made available to relevant government agencies, community groups and local libraries, to support an effective public review process. • In some countries the review of the EIA report is a two-stage process: 1) a draft EIA report is submitted and comments are received from government and stakeholders; 2) a final EIA report is subsequently prepared, addressing the comments and responding to any new concerns or issues raised. A decision about whether to approve a development is then made on the basis of the final document.
<p>EIA REPORT APPROVED</p> <p>or</p>	<ul style="list-style-type: none"> • Based on the review step the EIA administrator determines if the EIA report is adequate and whether or not it will be approved. • If the EIA report is approved the EIA administrator submits a review report for the consideration of the development approval authority. The review report contains recommended permit or approval conditions that relate to environmental management, monitoring and reporting actions to be undertaken by the proponent. Management, monitoring and reporting actions should encourage a development to proceed with caution, and they should also promote safety and resilience.
<p>EIA REPORT NOT APPROVED</p>	<ul style="list-style-type: none"> • If the EIA report is considered inadequate and is not approved, the proponent will be required to revise the document to address identified shortcomings. The proponent will then resubmit the EIA report to the EIA administrator for a second review.
<p>PROONENT AND APPROVAL AUTHORITY INFORMED</p>	<ul style="list-style-type: none"> • The EIA administrator informs both the proponent and the development approval authority that they have approved the EIA report and developed recommendations for permit conditions. • Depending on a country's planning laws and policies, the proponent may have an opportunity to respond to the permit conditions recommended by the EIA administrator, and they may be able to discuss the conditions directly with the development approval authority.

STEP IN PROCESS	DESCRIPTION
DEVELOPMENT PERMIT ISSUED or DEVELOPMENT PROPOSAL REJECTED	<ul style="list-style-type: none"> • After examining all relevant information, including the proponent's EIA report and the EIA administrator's review report, and giving consideration to stakeholder views and the costs and benefits of a development, the approval authority will arrive at a decision to either: • issue a permit for the development, specifying conditions subject to which the permit is issued; or • reject the development proposal where there is unacceptable uncertainty surrounding the development's environmental impacts or impacts of the environment on the development; the possibility of serious consequences for the environment and/or the development; and no mitigation measures to address these consequences. • A key consideration for the approval authority, in deciding whether to permit or reject a development, is the proponent's capacity to effectively implement environmental management measures and to avoid adverse impacts. • The approval authority may issue a statement of reasons to justify the decision they have reached. • Where legislation permits, the proponent and third parties (e.g. local communities, land/resource owners, other relevant stakeholder groups) may be able to appeal or legally challenge the approval authority's decision, especially if they are unhappy with or aggrieved by a development rejection or permit, or if they object to particular permit conditions. Appeal provisions under legislation can allow for merits or judicial review of government decisions. Merits review considers all the evidence relating to the merits of a decision and determines whether or not a correct and preferable decision has been made. Judicial review examines the lawfulness of the decision-making process. Judicial review may consider matters such as whether a decision-maker has wrongly applied or misunderstood the law; behaved unreasonably; reached a decision that was affected by dishonesty, corruption, bribery or bias; failed to take into account relevant considerations; or taken into account irrelevant considerations.
DEVELOPMENT (WITH CONDITIONS) IMPLEMENTED	<ul style="list-style-type: none"> • After a development permit is issued, the proponent implements their development in line with the conditions or terms attached to their permit. • At this stage of the EIA process, a key task for the proponent is to finalise and implement their environmental management plan based on the draft plan provided in the EIA report and the permit conditions issued by the approval authority. • Implementation of the environmental management plan should commence during the construction phase of a development, continue throughout the operational phase, and be ongoing during site restoration/rehabilitation (where applicable).
DEVELOPMENT MONITORED AND CONDITIONS ENFORCED	<ul style="list-style-type: none"> • Monitoring and enforcement is an essential part of the EIA process with a two-fold purpose; to determine whether: (1) the proponent has effectively their implemented environmental management plan, and (2) they have complied with the conditions attached to their development permit. • The EIA administrator should monitor a development throughout the construction and operation phases, and through to the decommissioning and site rehabilitation phases (where appropriate). • If an EIA administrator lacks monitoring capacity and expertise, or if they are dealing with a number of ongoing developments that exceed their technical resources, it is advisable they seek support from other government agencies or engage the services of independent experts. It may be appropriate and beneficial for government officers to work alongside monitoring experts so they can build their own knowledge, experience and confidence. • Monitoring activities by government officers or independent experts should involve site visits, direct inspection of operations, measurement of environmental parameters (e.g. water quality), and preparation and review of audit reports. • Performance conditions and criteria should be clearly specified in a development permit to ensure both the proponent and the EIA administrator have clear benchmarks for monitoring and assessing environmental management and environmental performance. • Monitoring and enforcement works most effectively when legislation outlines the responsibilities of, and prescribes specific powers for, the EIA administrator and the development approval authority. Legislation should also detail penalties that can be issued and actions that can be taken for non-compliance with permit conditions (e.g. suspension or cancellation of a development permit; issue of a pollution abatement order, a prosecution notice or a stop work order). The establishment of a multi-agency environmental monitoring committee can greatly assist the EIA administrator with effective monitoring and enforcement. • The effort put into monitoring and enforcement should be aligned with the environmental risks posed by a development and the environmental hazards likely to affect a development, to ensure preparedness, safety and resilience at all times. Some developments will demand a lot of monitoring effort (e.g. a fish cannery on the coastal foreshore), while others will require relatively less effort (e.g. land-clearing for agriculture). • Traditional authority structures related to customary land ownership can also assist with monitoring and enforcement, especially in instances where local village leaders are familiar with a development site. • Monitoring or audit reports should acknowledge good environmental performance and/or management, and identify any issues or activities that have resulted in non-compliance with development permit conditions. The reports should specify remediation or management actions that need to be undertaken by the developer to limit environmental damage or the vulnerability of the development to environmental hazards, and to promote sustainable and resilient development outcomes. In cases of non-compliance, follow-up audits are important for determining if corrective management actions have been applied and if they have resulted in improvements in environmental performance and management. • It is appropriate for government to ask a proponent to cover the costs of monitoring, especially if these costs are above and beyond government's normal operational costs. This is a practical way for proponents to demonstrate their duty of care towards the environment.

4.4 EIA and the project management cycle

A linear EIA process is detailed in Figure 4 and Table 1, however, it is important to remember that EIA is actually part of a larger project management cycle (see Figure 5). EIA is an ongoing process of identifying impacts from a development activity, assessing the consequences of those impacts, putting in place management measures to deal with the impacts, monitoring and evaluating the management measures, and then making changes to the development activity, if required. This cyclical process of adaptive management, or continual improvement, should be ongoing for the whole life of a development; from construction through to operation, through to site closure and rehabilitation, where relevant.

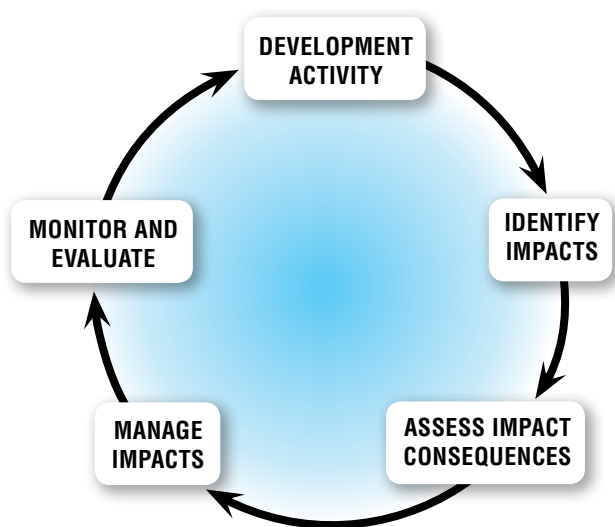


FIGURE 5 The EIA process should be seen as part of a larger project management cycle.

4.5 Strategic environmental assessment: a process for supporting EIA

This section provides a brief introduction to the SEA process, to promote general awareness of the tool amongst SPREP member countries. As described in section 2.1, SEA is a complementary mechanism to the EIA process. SEA can be seen as an ‘up-stream’ process that evaluates alternative development visions and identifies the best broad-scale development options at an early planning stage; which assists with strategic policy- and decision-making; and which seeks to ensure the full integration of relevant environmental considerations in policy- and decision-making. EIA is a ‘down-stream’ process that identifies the best design and environmental management options for individual projects coming through at a later stage.

Over the last decade the use of SEA has been evolving,

with the process being adapted and applied for different purposes in different parts of the world.¹³ Section 2.1 of these Guidelines described three main SEA applications: (1) to prepare a strategic development or resource use plan for a defined land and/or ocean area; (2) to examine the potential environmental impacts that may arise from, or impact upon, the implementation of government policies, plans and programmes; and (3) to assess different classes or types of development projects, so as to produce general environmental management policies or design guidelines for the development classes/types.

Applications 1 and 3 are likely to be particularly relevant for the Pacific context. For example, application 1 could include the development of a water resource management plan for a catchment or aquifer, to support sustainable water use and water security; the preparation of a whole-of-island agricultural development plan, with an aim of increasing local food security; or the development of a marine spatial plan that is based on informed and coordinated decisions about how to use a range of marine resources sustainably, within a defined area. Application 3 could include a broad assessment of particular development types/classes such as quarries, hydro-power systems, solar photovoltaic panel systems, coastal roads or coastal housing subdivisions. Application 3 should result in the preparation of general project design and environmental management policies/guidelines that promote sustainable and resilient development and avoid undesirable cumulative impacts.

For the Pacific context a basic SEA process can be defined as follows:¹⁴

- **Screening** – to determine if an SEA is required and at what level of detail. Key questions to be asked include: is a strategic assessment needed to assist with the development of a sustainable land-, ocean- or resource-use plan for a particular area? Is a policy, plan or programme likely to have a significant impact on the environment, and do these impacts need to be addressed? Does a policy need to be prepared to guide particular types or classes of development?

¹³ Do Rosário Partidário M. 2012. Strategic Environmental Assessment Better Practice Guide – methodological guidance for strategic thinking in SEA. http://ec.europa.eu/environment/eia/pdf/2012%20SEA_Guidance_Portugal.pdf. Accessed 15 March 2016.

¹⁴ Adapted from: Abaza H., Bisset R. and Sadler B. 2004. Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach. Geneva: United Nations Environment Programme.

Legislative Council Secretariat. 2015. Information Note: Strategic Environmental Assessment. <http://www.legco.gov.hk/research-publications/english/1415in02-strategic-environmental-assessment-20150105-e.pdf>. Accessed 15 March 2016.

- **Scoping** – to identify the key issues to be addressed by and the boundaries of the SEA, and to capture this information in terms of reference for the environmental assessment.
- **Environmental assessment** – to examine for a defined land and/or ocean area, policy/plan/programme, or development type/class:
 - its environmental targets/objectives;
 - reasonable development alternatives or scenarios;
 - likely environmental impacts (positive and negative) from different development scenarios;
 - likely cumulative impacts that may result from the combined, incremental effects of human development activities, environmental change processes and/or physical events (e.g. extreme weather events, natural disasters); and
 - viable mitigation measures that can support sustainable and resilient development.
- **Reporting** – to detail the findings of the environmental assessment to government agencies, local communities and other stakeholders.
- **Monitoring** – to examine the implementation of a policy, plan or programme to ensure that any unforeseen environmental impacts are identified; that appropriate mitigation measures are being undertaken; and that the policy, plan or programme is contributing to sustainable and resilient development.

An important feature of SEA is consultation, which means engaging relevant government agencies, industry, non-government organisations (NGOs) and members of the public/local community during each step of the SEA process. A good SEA will facilitate constructive debate and discussion amongst stakeholders regarding the

development of policy/plan/programme objectives and directions; the review of SEA results; and the development of recommendations for decision-makers. Effective and meaningful SEA consultation can help to promote social acceptance of government policies, plans and programmes.

Some of the recognised benefits of SEA are that it:¹⁵

- encourages environmental concerns, opportunities, limitations and risks to be considered during the early stages of policy, plan and programme formulation, which in turn, helps to establish a governance framework for sustainable and resilient development;
- promotes transparent governance by encouraging public involvement in policy development and planning;
- provides early warning of cumulative impacts;
- identifies trade-offs between natural and biophysical, social and economic aspects of the environment and enhances the chance of finding win-win options;
- allows for the consideration of alternative development and resource use scenarios for a defined land and/or ocean area; and
- reduces the time and effort required for EIA review, e.g. the SEA for a national renewable energy development plan might pinpoint locations where developments are/are not permissible; stipulate desired types and characteristics of renewable energy developments; specify biodiversity protection and climate change and disaster risk management measures that need to be followed; and identify key social issues that need to be addressed when implementing renewable energy programmes.

Key features of EIA and SEA are summarised and compared in Table 2.

¹⁵ International Association for Impact Assessment. 2002. Strategic Environmental Assessment Performance Criteria. <http://www.iaia.org/uploads/pdf/sp1.pdf>. Accessed 15 March 2016.

United Nations Environment Programme. 2002. Topic 14 – Strategic Environmental Assessment, p 491-532. In: Environmental Impact Assessment Training Resource Manual. http://www.unep.ch/etu/publications/EIA_2ed/EIA_E_top14_body.PDF. Accessed 15 March 2016.

Secretariat of the Convention on Biological Diversity and Netherlands Commission for Environmental Assessment. 2006. Biodiversity in Impact Assessment, Background Document to CBD Decision VIII/28: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment. Montreal, Canada.

Dusik J. and Xie J. 2009. Strategic Environmental Assessment in East and Southeast Asia. A Progress Review and Comparison of Country Systems and Cases. Washington D.C.: The World Bank.

TABLE 2 Comparing and contrasting the EIA and SEA processes.¹⁶

	EIA: PROJECT SCALE	SEA: POLICY, PLAN AND PROGRAMME SCALE
OBJECTIVE	To minimise and mitigate environmental impacts for projects, by setting specific environmental performance and management standards	To promote sustainable and resilient development by embedding sound environmental management within policies, plans and programmes
SCOPE	Identifies environmental impacts for a specific project and location	Identifies environmental impacts related to a broad policy, plan or programme for development
PERSPECTIVE	Narrow perspective, high level of site-specific detail	Broad, strategic perspective, more general environmental details
TYPE OF PROCESS	Well-defined process, clear beginning and end	Multi-stage, flexible and iterative process
ALTERNATIVES	Considers a limited number of feasible development alternatives, within the scope of a project	Considers a broad range of feasible development alternatives across a development sector, theme or land/oceanscape
CUMULATIVE IMPACTS	Limited review of cumulative impacts	Early warning of cumulative impacts
MONITORING	Focuses on measuring actual impacts	Focuses on the outcomes of policy, plan and programme implementation



Industrial developments need to be carefully assessed, especially in terms of potential impacts on land, air, water and local communities. Photo: Melanie Bradley

¹⁶ Adapted from: Sadler B. and McCabe M. (Eds) (2002) *Environmental Impact Assessment Training Resource Manual*. United Nations Environment Programme. Geneva.

Secretariat of the Convention on Biological Diversity and Netherlands Commission for Environmental Assessment (2006) *Biodiversity in Impact Assessment, Background Document to CBD Decision VIII/28: Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment*. Montreal, Canada.

Dusik J. And Xie J. (2009) *Strategic Environmental Assessment in East and Southeast Asia. A Progress Review and Comparison of Country Systems and Cases*. The World Bank, Washington D.C.

5.0 Considerations and recommendations for effective environmental impact assessment

This section outlines seven key considerations and recommendations for effective EIA:

1. Clear legislation, backed by regulations, policies and supporting resources;
2. A strong, well-networked EIA administrator;
3. Local community, land/resource owner and stakeholder engagement;
4. Effective environmental management, monitoring and reporting;
5. Integration with the broader environmental governance context;
6. Application of security deposits (environmental bonds); and
7. Rigorous data collection, analysis, presentation and storage.

Many of these considerations and recommendations should be part of standard EIA practice, however, some may be challenging to implement in the Pacific due to resourcing and capacity constraints faced by EIA administrators. Nonetheless, all of the considerations and recommendations should be evaluated by government officers who are seeking to improve and strengthen the application of EIA.

5.1 Clear legislation, backed by regulations, policies and supporting resources

An effective EIA process should be grounded in legislation and regulations that clearly outline the:

- roles, authority and responsibilities of relevant government ministers and agencies;
- roles and responsibilities of development proponents, the local community, land/resource owners and other stakeholders;
- the standards that need to be met throughout the EIA process, especially in the preparation of EIA reports;
- timelines that need to be followed for different stages of the EIA process including screening, scoping and EIA report review, to ensure EIA decisions are delivered within a reasonable timeframe; and

- enforcement provisions and penalties for non-compliance.

Box 4 specifies key matters or provisions that should be included under EIA legislation or legislation related to specific development sectors, to promote strong and effective EIA processes in the Pacific. If these matters are not currently incorporated, SPREP recommends consideration be given to the revision of legislative frameworks.

It is important for EIA officers to have a thorough understanding of EIA legislation and regulations so they are fully aware of their responsibilities, the timelines they need to follow, and the critical role they play in development planning and assessment. It is also important that EIA legislation and regulations are transparent and publicly-available, in easily-accessible formats, so that proponents, the local community, land/resource owners and other stakeholders are fully aware of how to participate in and contribute to the EIA process.

To ensure EIA legislation is successfully implemented it should be backed by policies and supporting resources (e.g. checklists, templates and guidelines) that provide guidance on practical EIA implementation. Policies and supporting resources allow EIA officers to carry out their roles confidently, consistently, transparently and equitably. They promote the use of similar assessment methods for each development application, for both private and public developments, and across different types of land tenure. Examples of supporting resources include a project screening checklist (Tool 1), which can assist an EIA officer with determining if projects should be subject to an EIA; and a ToR template (Tool 2), which can help an EIA officer to prepare project-specific ToR.

EIA can be an expensive process, involving contributions from government staff, developers and private consultants. It is useful to have legislation, regulations or formal policies that specify who is responsible for bearing different EIA costs, particularly costs associated with public notifications, hiring consultants and undertaking environmental monitoring. By-and-large, EIA costs should be borne by the developer, as they will primarily benefit from the development. If the developer is a government department (i.e. an implementing agency), then the department will need to allocate funding to cover EIA costs as part of their duty of providing services or infrastructure for the wider community.



New waste management facilities should be subject to EIA. Waste management and pollution control is also an important issue for industrial and commercial developments, which needs to be assessed during the EIA process. Photo: David Haynes

BOX 4 Key matters to be addressed in legislation/regulations to support an effective EIA process

It is recommended that legislation/regulations include provisions that:

- specify the EIA process needs to examine the potential impacts of a development on the environment and the potential impacts of the environment on a development;
- require the development of ToR to guide the preparation of EIA reports, and the inclusion of the ToR in final EIA reports;
- stipulate a non-technical summary is to be included upfront in EIA reports. This summary should be translated into local language(s) where relevant;
- require proponents to undertake meaningful engagement with land/resource owners and the broader community;
- allow developers and third parties to seek merits or judicial review of government decisions relating to development approvals and approval conditions;
- provide a formal process for assessing the credentials of and registering consultants;
- provide for the development of formal arrangements between the EIA administrator and relevant government agencies to secure assistance with different stages of the EIA process, especially EIA report review and compliance monitoring and enforcement;
- allow for cost recovery from proponents for activities that will support a robust EIA process e.g. costs associated with commissioning an external review of EIA reports; with convening review panels for major projects; or with independent monitoring and enforcement; and
- facilitate the calculation and levy of security deposits, especially for projects with the potential to cause serious long-term environmental impacts.

Many of the above points have been covered in greater detail in earlier sections of the EIA Guidelines, or they are expanded upon in sections below.

5.2 A strong, well-networked EIA administrator

An effective EIA process is led by an EIA administrator with a strong sense of direction, clear authority, and sound understanding of their roles and responsibilities. The EIA administrator should also have well-established networks with relevant government departments/agencies (e.g. agriculture, climate change, energy, fisheries, forestry, health, mining, urban and land-use planning, water); regional organisations (e.g. SPREP, Pacific Community, Pacific Islands Forum Fisheries Agency, University of the South Pacific); and external experts or consultants. These networks are important for accessing knowledge and expertise that can assist with the assessment of complex, large-scale, highly technical or novel projects. SPREP has recently created the online Pacific Network for Environmental Assessment, which government officers are encouraged to join to build and increase their EIA networks around the region (see Box 5 for details).

It is recommended that EIA administrators use their networks (and relevant legislative provisions) to assemble a committee of experts to assist with EIA screening, scoping and review. This committee can meet on a regular (e.g. monthly) basis, depending on the number of development applications that need to be processed. Ideally, the makeup of the committee should be flexible, with committee members changing according to the type of development that is being assessed and the expertise that is needed to support effective assessment.

BOX 5 Pacific Network for Environmental Assessment (PNEA)

SPREP has created an online site to connect and support government officers working in the area of environmental assessment. PNEA allows officers to:

- send environmental assessment questions and assistance requests directly to SPREP;
- access environmental assessment resources, templates and educational materials; and
- keep up-to-date with environmental assessment news and events.

For further information and to register with PNEA, officers can visit: <http://pnea.sprep.org>

When an EIA administrator draws upon technical support and input from other government agencies they can focus more effectively on the management of EIA rather than trying to meet all of the skill and knowledge requirements. Also, EIA costs can be shared across government rather than be borne by a single agency. Creation of formal inter-agency relationships (e.g. memorandums of understanding) can assist with the coordination of EIA committees. Formal relationships encourage more effective inter-agency engagement, especially on a project-by-project basis, and they are particularly important to ensure continuity of support when there are high rates of government staff turnover.

Some countries may also choose to develop a formal register of consultants that can be referred to whenever external expertise is required by government or proponents. Consultants' credentials should be thoroughly scrutinised before they are eligible for listing on the register, and they should be required to pay a prescribed fee to the EIA administrator. The governments of Fiji, Papua New Guinea and Vanuatu, for example, have provisions in place for registering consultants.

5.3 Local community, land/resource owner and stakeholder engagement

The Pacific is characterised by extensive customary land ownership and direct linkages between community livelihoods, subsistence lifestyles, natural resource conditions and sustainable development. Within this context, an effective EIA process must be participatory, engaging the local community and customary land/resource owners likely to be affected by a development, as well as other relevant stakeholders such as provincial or local government authorities; businesses; NGOs; women's, men's and church groups.

The nature and frequency of stakeholder engagement should reflect a project's level of risk and its anticipated impacts and it should be designed to ensure communities have an opportunity to learn about, and participate in, decision-making processes that will affect them. Effective stakeholder engagement should meet four objectives, to:

- familiarise stakeholders with the project planning and approval process;
- get input from stakeholders on potential project impacts, which may be perceived or actual impacts (see Box 6 for an introduction to social impacts);
- get feedback from stakeholders on project design and impact mitigation measures; and
- build and maintain constructive relationships between all parties.

BOX 6 What are social impacts?

A development project can have social impacts that result in changes to people's:¹⁷

- way of life – their lifestyles, work, interactions and recreation;
- culture – belief systems, customs, values, language or dialect;
- community – its cohesion, stability, character, services and facilities;
- political and governance systems – the extent to which people are able to participate in decisions that affect them, the level of democratisation, and resources provided for this purpose;
- environment – air and water quality, availability and quality of food, levels of hazard or risk, dust and noise exposure, adequacy of sanitation, physical safety, and access to and control over resources;
- health and wellbeing – physical, mental, social and spiritual wellbeing;
- personal and property rights – particularly where people are economically affected, or experience personal disadvantage e.g. a violation of their civil liberties, human rights or customary rights; and
- fears and aspirations – perceptions about safety, fears about the future of their community, and aspirations for their future and the future of their children.

Social impact assessment (SIA) can be applied as part of the EIA process to specifically analyse, monitor and manage social impacts. When applied effectively, by appropriately qualified and experienced personnel, SIA can help to promote community development and empowerment, build community capacity, and develop social networks and trust.

Early, effective and well-targeted stakeholder engagement can help to promote transparent, objective environmental assessment; allow for the identification of significant stakeholder issues and concerns; encourage a proponent to be responsive to local needs; help to build credibility and trust between the proponent and directly affected communities; and reduce the likelihood of misinformation, tension and social conflict. In turn, this can promote social acceptance of the project and support smoother construction and operation processes. In contrast, poor quality or inadequate engagement is likely to result in greater fear, anxiety and opposition towards a project.

Engagement with the local community, land/resource owners and other stakeholders should be a requirement under EIA legislation. This legal requirement should be supported by national guidelines that outline appropriate

¹⁷ Vanclay F. 2003. International Principles for Social Impact Assessment. *Impact Assessment and Project Appraisal*, 21(1): 5–12. <http://www.tandfonline.com/doi/pdf/10.3152/147154603781766491>. Accessed 16 March 2016.

methods and timeframes for engagement and consultation, and that provide recommendations for ensuring adequate participation by, and representation of, affected communities.

A proponent's engagement and consultation with stakeholders should be directed by a plan that details activities to be undertaken throughout the life of a project. In the Pacific context, engagement and consultation may include:

- making project information publicly-available when an EIA is first declared, and providing the local community, land/resource owners and other stakeholders with an opportunity to raise issues and suggestions for the EIA report ToR;
- recognising and respecting community governance structures, traditions, languages, timeframes, decision-making processes and consultation protocols;
- providing stakeholders with a non-technical summary of EIA reports, translated into local language; or the use of alternative communication approaches such as local language videos, presentations, radio programmes, meetings and/or workshops; and
- placing copies of EIA reports in national, provincial, local government or NGO offices; local libraries; local shops or banks; or on government and proponent web sites, to allow community members, land/resource owners and other stakeholders to easily access and provide comment on reports.

Box 7 outlines key principles for effective stakeholder engagement.

BOX 7 Principles for effective engagement

- Provide meaningful information in a format and language that is readily understandable and tailored to the needs of target stakeholder group(s).
- Provide information in advance of consultation activities and undertake consultation prior to decisions being made or finalised.
- Encourage two-way dialogue that gives both sides the opportunity to exchange views and information, to listen, and to have their issues heard and addressed.
- Seek inclusive representation of views, including the views of women, youth, disabled persons, vulnerable and minority groups.
- Ensure the process is free of intimidation, coercion and/or bias.
- Provide mechanisms for responding to people's concerns, suggestions and grievances.
- Incorporate feedback into project design and report back to stakeholders on how their feedback has been used.

5.4 Effective environmental management, monitoring and reporting

Environmental management, monitoring and reporting is a critical part of the EIA process. The EIA administrator must ensure that a proponent develops, implements, monitors and reports on the effectiveness of an environmental management plan (EMP)¹⁸ for their project. An EMP is a project-specific written document that:

- describes all mitigation measures to be implemented to address the impacts identified during the EIA process;
- sets objectives and targets to be met through effective implementation of the mitigation measures;
- describes key variables, related to a project's impacts, that will be monitored;
- provides a schedule for the implementation and monitoring of mitigation measures across the life of a project (including during site rehabilitation and after site closure, where relevant);
- provides for regular reporting to government regulatory authorities, with this reporting describing the works and mitigation measures undertaken, the condition or status of key variables, and the effectiveness of the mitigation measures;
- outlines procedures for dealing with accidents and emergencies, and for taking corrective action if initial mitigation measures are not working as planned; and
- specifies the roles and responsibilities of key project personnel, for each aspect of the EMP.

A draft EMP should be submitted with the EIA report, with the EMP to be finalised after the EIA report has been reviewed, so that it can incorporate modified or additional mitigation measures identified by the EIA administrator. The final EMP approved by the EIA administrator will form part of the project approval, and hence, it must be implemented effectively. The EIA administrator has an important role in overseeing the EMP and ensuring mitigation measures are being effectively implemented and the proponent is providing regular reports to regulatory authorities. EMP mitigation measures should be adjusted and enhanced as needed, to avoid significant negative impacts to the greatest extent possible, to safeguard the environment (which includes the community affected by a development proposal), and to ensure compliance with relevant legislation.

The proponent and EIA administrator can refer to the impact mitigation hierarchy to guide the choice of mitigation measures for an EMP. In order of preference, the impact mitigation hierarchy is: *enhance* positive impacts; *avoid* negative impacts; *minimise* negative impacts that cannot

¹⁸ Also referred to as an environmental and social management plan.

be avoided; *rehabilitate* or remedy negative impacts that cannot be minimised; and *offset* (or compensate for) negative impacts that cannot be remedied.¹⁹ The hierarchy's key terms are defined in Box 8.

BOX 8 The impact mitigation hierarchy

Enhance – seek opportunities to or take measures that support the enhancement of positive impacts e.g. provide training courses for local community members to help them take on new job opportunities linked to the development project; remove invasive species from an area of protected habitat on the project site.

Avoid – take measures from the outset of development planning to avoid creating negative impacts e.g. refrain from building in areas that are ecologically or socially sensitive; ensure that the capture, storage and processing of a pollutant is incorporated in project design, rather than allow direct discharge of the pollutant to the environment.

Minimise – take measures to reduce the duration, intensity and/or extent of negative impacts, where they cannot be avoided e.g. decrease the seabed area that needs to be dredged for a new shipping channel; reduce the rate and overall amount of non-renewable resource extraction.

Rehabilitate – take measures to restore degraded ecological or social systems following exposure to negative impacts that cannot be avoided or minimised e.g. restock a fishery; replant cleared habitat; improve and resurface roads that will face increased traffic from a major development.

Offset (or compensate) – take measures to offset or compensate for negative impacts that cannot be avoided, minimised or rehabilitated e.g. implement habitat enhancement and ongoing conservation protection within a forest area that is larger than another forest area cleared for a new housing development; implement a resettlement plan and provide housing for villagers affected by a hydroelectric development.

Any offsets proposed by a proponent should be carefully evaluated by the EIA administrator, to avoid poor or undesirable environmental outcomes. Assistance with offsets evaluation can be sought from SPREP and other organisations that hold relevant technical expertise for assessing the scientific robustness, comprehensiveness and likely effectiveness of offsets proposals, and for evaluating whether the nature and scale of offsets is

¹⁹ de Jesus J. 2013. Mitigation in Impact Assessment. International Association for Impact Assessment. http://www.iaia.org/uploads/pdf/Fastips_6Mitigation.pdf. Accessed 16 March 2016.

Business and Biodiversity Offsets Programme. 2015. Mitigation Hierarchy. http://bbop.forest-trends.org/pages/mitigation_hierarchy. Accessed 16 March 2016.

appropriate. The design and implementation of effective offsets must be based on the key principle of delivering an overall outcome that improves or maintains the viability of the aspect of the environment that is affected by a development.²⁰

5.5 Integration with the broader environmental governance context

The EIA process should not be implemented in isolation; it works best when it is applied with reference to the broader environmental governance context, which is comprised of international and regional MEAs; international, regional, national and sub-national policies, plans and programmes; and government legislation (Figure 6). The broader environmental governance context is useful for EIA because it specifies objectives, targets and obligations that need to be met for different environmental issues, and it provides guidance on how particular issues should be addressed (e.g. climate change, disaster risk management, biodiversity conservation, waste management, customary land tenure, healthcare, economic development, energy/water resource management). For example, in conducting an EIA for a new industrial development an EIA administrator can consider whether the development aligns with objectives under the government's land-use policy and national sustainable development strategy; with targets under the national climate change and disaster risk management policy; and with obligations under the Stockholm Convention and customary land tenure laws.

Appendix 2 lists different types of environmental governance instruments that may be relevant to the EIA process, especially during stages such as ToR development, EIA report review, approval decision-making, and the development of approval conditions.

'Mainstreaming' is a term related to environmental governance considerations; it refers to the integration of relevant policy and planning issues within the EIA process. Mainstreaming is about ensuring that relevant issues receive adequate attention and that new developments will not exacerbate current problems (e.g. coastal erosion), increase vulnerability to hazards (e.g. extreme weather events), or work in opposition to existing policy obligations (e.g. those outlined in MEAs). Box 9 focuses on mainstreaming climate change and disaster risk management considerations within EIA. Ideally, mainstreaming should commence at the start of the development planning and design process, even before a development proposal is submitted to government.

²⁰ Australian Government, Department of Sustainability, Environment, Water, Population and Communities. 2012. Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy. www.environment.gov.au/system/files/resources/12630bb4-2c10-4c8e-815f-2d7862bf87e7/files/offsets-policy_2.pdf. Accessed 16 March 2016.

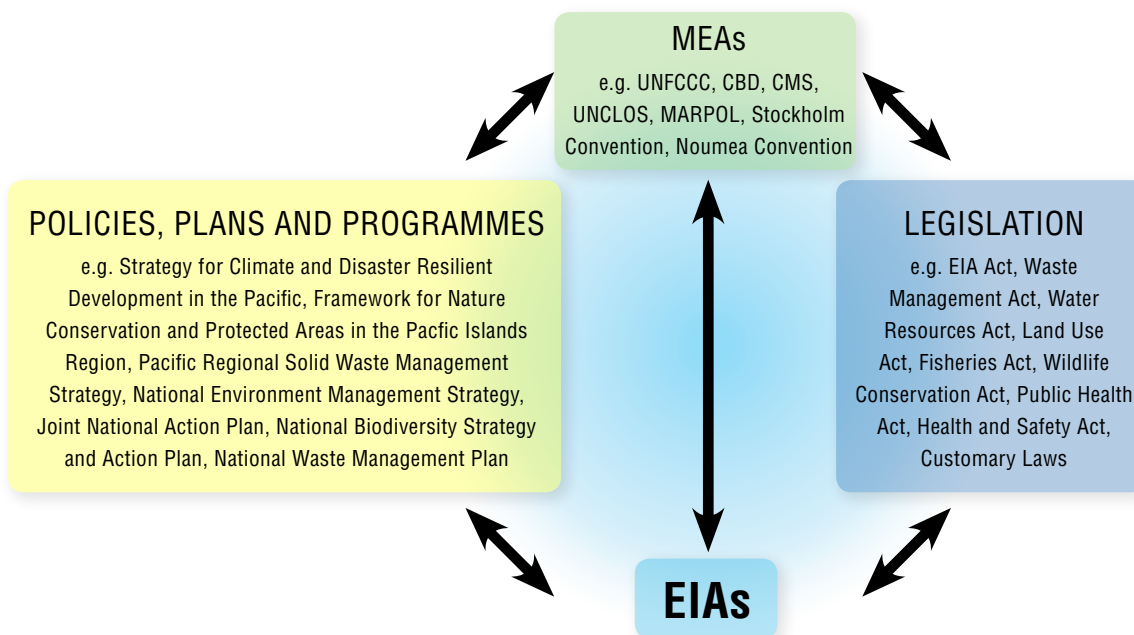


FIGURE 6 EIAs and the broader environmental governance context. An effective EIA process refers to other levels of environmental governance (i.e. international and regional MEAs; national policies, plans and programmes; national legislation) to ensure that new development projects meet broader environmental objectives and targets.

BOX 9 Climate change and disaster risk management mainstreaming in EIA

Pacific island countries and territories should be mainstreaming climate change and disaster risk management considerations within their EIA processes so as to promote resilient development. This type of mainstreaming involves developers:

- assessing climate change and disaster hazards for their project and its surrounding area;
- assessing the contribution of their project to climate change and disaster hazards (e.g. release of greenhouse gas emissions, removal of protective coastal vegetation);
- identifying ways to improve on project siting and design through the evaluation of future climate predictions and the adoption of climate change and disaster risk mitigation measures; and
- incorporating climate change adaptation and disaster risk management in their environmental management plans and environmental monitoring programmes.

Government has a mainstreaming role too; they should:

- examine climate change and disaster hazards for a project and the contribution of a project to climate change and disaster hazards during screening, scoping and EIA report review (see Tools 1, 2 and 3);

- refer to relevant policies and plans (e.g. National Climate Change Policy, Joint National Action Plan, National Adaptation Programme of Action) and their obligations under the UNFCCC, when reviewing, approving and monitoring development projects.

The state of Kosrae, Federated States of Micronesia, has led the way on climate change mainstreaming by amending its *Regulations for Development Projects* and explicitly requiring that all EIAs assess the effects of natural change, climate change and impacts of extreme weather/climate events on a proposed activity. EIAs in Kosrae must also look at incorporating adequate climate change adaptation measures into project design.

Pacific island countries and territories are encouraged to review, and where necessary, amend their EIA legislation to ensure it addresses the potential impacts of climate change and disasters on developments, and the potential impacts of developments on climate change and disaster risks. For a detailed overview of climate change mainstreaming it is recommended that government officers consult: *Mainstreaming climate change into development in the Pacific: A practical guide*.²¹

²¹ Jasperse J.A., Buncle A., Pelesikoti N., Nakalevu T., Aiavao U. and Moorhead A. 2014. *Mainstreaming Climate Change into Development in the Pacific: A Practical Guide*. Secretariat of the Pacific Regional Environment Programme and United Nations Development Programme. <http://www.pacificclimatechange.net/index.php/eresources/documents?ask=view&id=980&catid=245>. Accessed 16 March 2016.

By mainstreaming relevant issues and integrating EIA with the broader environmental governance context, EIA administrators are likely to be more aware and capable of addressing cumulative impacts. Cumulative impacts are changes in the environment, resulting from the combined, incremental effects of past, present and future human activities; long-term environmental change processes; and physical events (e.g. extreme weather events and natural disasters). An example of cumulative impacts is the progressive clearing of mangroves along a coastline for housing, industrial and tourism developments, which results in widespread coastal erosion, fish habitat degradation and increased vulnerability to extreme weather events, storm surge and sea level rise. The broader environmental governance context encourages EIA administrators to think beyond individual development sites, to regional development clusters or industry-wide development, and to be mindful of the need to manage for larger-scale environmental issues.

5.6 Application of security deposits (environmental bonds)

A security deposit or environmental bond is a payment made by a developer to government, which acts as a form of insurance against government having to pay for environmental damage, remediation or clean up costs in the event that a development causes environmental harm and the developer defaults on their environmental management obligations. Security deposits are commonly applied to mining operations and some Pacific island countries have provisions for them within their land-based and seabed mining legislation.²² Legislative provisions could also be written into EIA legislation to allow for the levy of security deposits on any type of development that has the potential to cause significant impacts.

The need for a security deposit is determined prior to construction and operation and it is required as a condition of the development approval or authorisation. The regulatory agency that holds legal responsibility for security deposits²³ may have a formula for calculating the amount of security that needs to be lodged by a developer. With mining operations the calculation is typically based on the cost of stabilising, repairing and rehabilitating a site, taking into account the size of the development, the level of risk it poses, and the extent of environmental harm it could potentially cause.

Security deposits can take different forms, for example,

²² Refer to: *Mining Act 1992*, Papua New Guinea; *Seabed Minerals Act 2009*, Cook Islands; *Seabed Minerals Act 2014*, Tonga; *Tuvalu Seabed Minerals Act 2014*.

²³ Security deposit requirements are often included under mining legislation but they can also be included under environmental legislation.

they may be paid as a bank guarantee, an insurance or performance bond, a company guarantee, into a trust fund, as a cheque or in cash.²⁴ The type of security deposits deemed acceptable are usually specified under legislation.

A security deposit should not be released or fully refunded until a developer has met all of the environmental management and/or site closure criteria specified in their development approval. Site closure criteria may require a developer to undertake environmental monitoring and reporting to regulatory authorities over a certain time period beyond the life of their development, to ensure there is no ongoing environmental harm.

Prior to the application of a security deposit it is important that potential impacts of the project on the environment or impacts of the environment on the project are comprehensively evaluated, with appropriate management plans being developed as part of the EIA process. Security deposits should only be relied on as a last resort; it is preferable that environmental management actions are adequately completed by a developer, rather than Government needing to rely on a security to undertake remediation work.

5.7 Rigorous data collection, analysis, presentation and storage

Rigorous data collection, analysis and presentation are important for a robust and meaningful EIA process. An EIA report should present accurate and relevant baseline data for a project site and the project's area of influence, which assists with developing sound understanding of existing environmental conditions and potential project impacts.

Depending on the type and scale of development, the data presented in an EIA report may encompass biophysical, economic and socio-cultural variables, and it may be quantitative or qualitative. Often proponents will collect their own on-site data but they might also need to access baseline data from government agencies and regional universities.

Once a development gets underway an environmental monitoring programme should be implemented by the proponent as part of their environmental management plan. Environmental monitoring involves the collection of data, which is compared to baseline data, to determine if a development has contributed to, or resulted in, environmental change. Environmental monitoring results should be regularly reported to the EIA administrator and other relevant regulatory authorities. In the case of a large-scale, complex or contentious development the EIA

²⁴ The World Bank. 2008. Guidance Notes for the Implementation of Financial Surety for Mine Closure. Oil, Gas and Mining Policy Division. http://siteresources.worldbank.org/INTOGMC/Resources/financial_surety_mine.pdf. Accessed 16 March 2016.

administrator may nominate an independent consultant to undertake an environmental audit of the operation to promote unbiased assessment of environmental performance. Typically, all costs related to environmental monitoring and auditing should be covered by the proponent.

Data collection, analysis and presentation during the EIA process should focus on a development's potential impacts on environmental conditions, features, processes and functions. Where feasible and/or appropriate, the use of standardised data collection methods and standardised data presentation formats should be encouraged, so that the same level of rigour applies across all developments. Developers should also present EIA data in a spatial format (i.e. using a Geographic Information System, GIS), to assist with understanding the physical location and extent of a development, and the scope and scale of impacts.

It is recommended that all environmental data provided to the EIA administrator, especially data that is not 'commercial in confidence', be stored and managed as an information asset. Ideally, data from EIA baseline and monitoring studies should be stored in a national database that allows for easy retrieval and analysis of information, and for the integration of data across project sites, where feasible, to support State of the Environment and MEA reporting, and the identification of cumulative impacts.

The national database should be jointly developed with other government agencies, regional organisations and research institutions, with agreed protocols for data input, storage, access and sharing; and a clear understanding between all parties regarding data ownership. Table 3 provides examples of themes and indicators that may be relevant to the EIA process and that could be included in a national database. Most of the themes and indicators are linked to the State of the Environment reporting work



Coastal protection measures (e.g. seawalls) need to be carefully planned and assessed prior to implementation, to ensure they will effectively protect community assets and not cause unintended impacts along neighbouring areas of coastline. Photo: Melanie Bradley

that SPREP is currently supporting in member countries. Ultimately, the list of themes and indicators to be included in a national database will depend on the type and scale of development projects taking place; the environmental conditions, features, processes and functions that need to be most closely monitored; and a country's environmental reporting obligations, especially with regard to MEAs.



Pacific island communities are vulnerable to climate change and natural disasters. The EIA process should give consideration to climate change and disaster risk management, to promote resilient development. Photo: Melanie Bradley

TABLE 3 Examples of environmental themes and indicators for EIA data.

These themes and indicators can contribute to State of the Environment and MEA reporting, especially if datasets are aggregated across a number of project sites. To ensure data can be aggregated in a scientifically valid way, environmental monitoring and reporting protocols should be stipulated for the indicators.

ENVIRONMENTAL THEME	PROJECT-LEVEL INDICATORS*
Atmosphere and climate	Greenhouse gas emissions (tonnes CO ₂ -e) per year Aggregate greenhouse gas emissions (tonnes CO ₂ -e) over project life Air quality in project area (e.g. levels of carbon monoxide, nitrogen dioxide, particulate matter, sulphur dioxide)
Biodiversity	Type(s) of threatened species identified in project area^ Number of threatened species identified in project area (species/hectare) Type(s) of invasive species identified in project area^ Number of invasive species identified in project area (species/ hectare)
Land	Area of primary forest protected (hectares) Area of primary forest cleared (hectares) Area of secondary forest protected (hectares) Area of secondary forest cleared (hectares) Area of crop land under cultivation (hectares) Area of crop land cleared (hectares) Type(s) of crops under cultivation^
Local/national economy	Number of local people employed across the life of the project Tax revenue per year Royalty payments per year
Marine	Percentage live coral cover in project area Lagoon/harbour water quality (e.g. levels of pH, dissolved oxygen, total nitrogen, total phosphorus, total suspended sediment) Fish biomass harvested per year Fish biomass harvested over project life Sea level rise (millimetres per year)
Natural resources	Volume of mineral resource(s) extracted per year Volume of mineral resource(s) extracted over project life
Waste	Volume of wastewater production (litres/month or litres/year) Volume of solid waste production (tonnes/month or tonnes/year)
Inland waters	Volume of groundwater extracted (litres per year) Volume of surface water extracted (litres per year) River/stream water quality (e.g. levels of pH, dissolved oxygen, total nitrogen, total phosphorus, total suspended sediment)
Built environment	Number of new houses built across the life of the project Traffic volumes in identified project area (trucks/week or trucks/year)
Social and community	Population size and demographic profile Percentage of total community employed or engaged in different economic activities (e.g. formal, informal, subsistence, dependency) Type(s) of social infrastructure, facilities and services (e.g. health, welfare and education)^

* Individual projects can supply data for these indicators, where relevant.

^ Qualitative data.

6.0 Environmental impact assessment toolkit

The environmental impact assessment toolkit contains four tools that provide general guidance for EIA officers:

- Tool 1 – EIA screening checklist;
- Tool 2 – Terms of reference template;
- Tool 3 – EIA report review template; and
- Tool 4 – Risk assessment for EIA reports – an example approach.

Tools 1 to 3 support administration of the EIA process while Tool 4 supports the preparation of EIA reports. Tool 4 has been included to help EIA officers become more aware about the benefits of incorporating risk assessment within EIA.

The tools can be adapted to suit different legislative contexts and different types of development activities in Pacific island countries and territories.



Environmental monitoring and reporting is an important part of the EIA process. Photo: Carlo Iacovino

TOOL 1 EIA screening checklist

The screening checklist tool is designed to assist EIA officers with determining if an EIA is required, based on the characteristics of a proposed development project, its planned location and potential environmental impacts. Completion of a checklist supports structured, robust EIA decision-making and good record-keeping. The checklist can also be referred to during later stages of the EIA process to help inform further actions and decision-making, e.g. it can provide a foundation for project scoping and development of ToR.

Answers to checklist questions will be primarily based on information supplied by the project proponent in their development proposal. Sometimes it may be necessary to seek additional information in order to complete the checklist. Alternatively, the proponent could be asked to work through the checklist as a form of preliminary environmental assessment, sometimes referred to as a Preliminary Environmental Impact Assessment or a Preliminary Environmental Assessment Report.

Many of the checklist questions can be answered with yes, no, or not applicable (N.A.), however, some may require a short descriptive answer. There is a degree of overlap between some of the questions; this is to ensure important issues are adequately considered.

For the purpose of the checklist a 'significant impact' is defined as an impact that is important, notable, or of consequence for natural/biophysical, social or economic aspects of the environment. When determining if a project is likely to have a significant impact, the following factors should be considered: the sensitivity, value, and quality of the environment which is to be impacted; and the intensity, duration, magnitude, geographic location and extent of the impacts.

Upon completion of the screening checklist an EIA officer should be able to reach an informed decision and deliver a recommendation to the EIA administrator about whether a full EIA is required. In situations where there are many potential impacts; where management of impacts is likely to be difficult or is unclear; or where there are unknown and uncertain impacts; the proponent should be asked to undertake a full EIA.



The EIA process promotes sound development planning and management to protect community values and livelihoods. Photo: Stuart Young

EIA SCREENING CHECKLIST

SECTION 1 – PROJECT DETAILS			
Project reference no.			
Project name			
Project proponent (developer)			
Proponent's email address			
Proponent's phone number			
Project location (including coordinates, if available)			
Type and purpose of project (brief description)			
SECTION 2 – SIZE AND SCALE OF THE PROPOSED PROJECT			
Questions to be considered	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact need to be further investigated? Will it require management?
2.1 What area of land and/or sea will be developed? (indicate size of area, in m ² or km ²)			
2.2 Will a large amount of energy, water or other natural resources be required for project construction and operation?			
2.3 Will a large workforce be needed? Is a local and/or external workforce to be employed?			
2.4 What is the expected timeframe for the project? (including construction, operation, closure and decommissioning – if appropriate)			
SECTION 3 – CHARACTER OF THE PROPOSED PROJECT			
Questions to be considered	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact need to be further investigated? Will it require management?
3.1 What type of construction or operational activities will be undertaken by the project?			
3.2 Are the project activities novel (new) or have they been undertaken before within the country, or in the Pacific region?			
SECTION 4 – PROJECT LOCATION			
Questions to be considered	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact need to be further investigated? Will it require management?
4.1 Is the project to be located within or adjacent to a vulnerable area (e.g. low-lying coastal area, waterways, floodplain, wetland, steep sloping land)?			
4.2 Is the project to be located adjacent to a sensitive site or facility (e.g. historical or archaeological site, conservation reserve, school, hospital/ medical facility)?			
4.3 Is the project likely to impact on existing land or sea uses/activities?			
4.4 Is the proposed site suitable for the project (e.g. appropriate set-back from the coast, streams or rivers; no steep or eroding slopes)?			

4.5 Is the proposed project site customary land? Are all customary land/resource owners aware of the project proposal? Have they been consulted/meaningfully engaged?				
4.6 Are there special land zoning considerations that need to be taken into account (e.g. will the project be within a conservation reserve, rural, urban or industrial area)?				
SECTION 5 – ENVIRONMENTAL IMPACTS				
Aspect of the environment	Questions to be considered. Is the proposed project likely to result in...	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact need to be further investigated? Will it require management?
5.1 Topography, geology and soils	5.1.1 Destruction, covering or modification of any unique geological or landscape feature?			
	5.1.2 Soil contamination or disturbance of previously contaminated soils?			
	5.1.3 Disturbance of soils that are fragile, or susceptible to erosion or compaction?			
	5.1.4 Creation of steep slopes or other unstable land conditions?			
	5.1.5 Changes in the channel of a stream, a floodplain, or the bed of the ocean or lagoon?			
5.2 Water	5.2.1 Extraction or use of ground, surface or tank water resources, leading to reduction in the volume and quality of water available for the public water supply?			
	5.2.2 Pollution of ground, surface, coastal or sea water, via direct or indirect discharges or seepages; or through interception of an aquifer by drilling, cuts or excavations?			
	5.2.3 Changes in currents, or the course or direction of marine or fresh water movement?			
	5.2.4 Changes in runoff, drainage patterns or absorption rates?			
	5.2.5 Coastal, stream or river flooding?			
5.3 Air	5.3.1 Release of dust?			
	5.3.2 Release of hazardous, toxic or noxious air pollutants/emissions?			
	5.3.3 A significant increase or decrease in local or regional greenhouse gas emissions?			
5.4 Noise	5.4.1 A significant increase in existing (baseline) noise levels that will adversely affect people or animals?			
5.5 Plant life	5.5.1 Damage to or clearing of vegetation communities (e.g. upland forest or mangrove communities)?			
	5.5.2 Damage to or destruction of important plant communities (e.g. seagrass beds; plants with medicinal, cultural or commercial value; unique, threatened or endangered plant species)?			
	5.5.3 A reduction in agricultural crop production?			
	5.5.4 The farming or production of an exotic plant species?			
	5.5.5 The spread or introduction of an invasive plant species?			

Aspect of the environment	Questions to be considered. Is the proposed project likely to result in...	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact need to be further investigated? Will it require management?
5.6 Animal life	5.6.1 Damage to or destruction of coral reef areas?			
	5.6.2 Reductions in the numbers of unique, rare or endangered animal species?			
	5.6.3 Reductions in animal populations harvested regularly for human consumption (e.g. fisheries)?			
	5.6.4 Damage to or destruction of habitat for animal communities on land, in rivers or in the ocean?			
	5.6.5 Barriers to the migration or movement of animals?			
	5.6.6 The farming or production of an exotic animal species?			
	5.6.7 The spread or introduction of an invasive animal species?			
5.7 Natural resources	5.7.1 The extraction, harvest or consumption of natural resources (e.g. timber, minerals, water)?			
	5.7.2 A noticeable increase in the rate of use of any natural resource?			
	5.7.3 Substantial depletion of non-renewable resources?			
5.8 Human communities	5.8.1 Encroachment into existing settlement areas or customary lands?			
	5.8.2 Influx of an external workforce or in-migration to the project area?			
	5.8.3 Demand for additional housing to accommodate an external workforce?			
	5.8.4 Increased traffic or increased use of roads and the existing transport system; and an increase in associated health risks (dust, noise)?			
	5.8.5 Increased demand for and disruption to social services and infrastructure (e.g. water and energy supply, communications, sewage and waste disposal, fire protection, police, schools, medical care)?			
	5.8.6 A reduction in visual amenity?			
	5.8.7 Infringement on customs or customary rights?			
	5.8.8 Social change or impacts on traditional governance structures, resulting in community dislocation or loss of community cohesion?			
	5.8.9 Restrictions in access to customary areas or restrictions in resource use in customary areas?			
	5.8.10 Changes in access to or the quality of recreational opportunities (e.g. sites used for nature-based tourism)?			

Aspect of the environment	Questions to be considered. Is the proposed project likely to result in...	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact need to be further investigated? Will it require management?
5.9 Local and national economy	5.9.1 Local economic displacement or loss of livelihoods (including subsistence and informal economic activities)?			
	5.9.2 Creation of jobs/livelihood opportunities for locals?			
	5.9.3 Influx of the cash economy in areas where there was previously a subsistence-based economy?			
	5.9.4 Training or educational opportunities for locals?			
	5.9.5 Increased tax revenue for the national government? Royalties or benefits for sub-national levels of government?			
	5.9.6 Industry development opportunities?			
	5.9.7 Benefits for directly affected people and communities (which may include direct economic benefits, community development programmes etc.)?			
	5.9.8 Benefits for the broader community (e.g. upgrading of social services or infrastructure)?			
SECTION 6 – ENVIRONMENTAL HAZARDS (INCLUDING HAZARDS THAT ARE NATURAL, HUMAN-INDUCED OR TECHNOLOGICAL IN NATURE)				
	Questions to be considered. Will the proposed project be subject to, or affected by...	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact on the project – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact on the project need to be further investigated? Will it require management?
	6.1 Increased risk of an explosion or release of toxic pollution related to the use, handling, storage or production of hazardous substances?			
	6.2 Increased health and safety hazards or risks for people (e.g. from the use of machinery/equipment or the presence of hazardous substances)?			
	6.3 Increased vulnerability of people or property to water-related hazards (e.g. flooding, tidal waves)?			
	6.4 Increased vulnerability of people or property to geological hazards (e.g. landslides, ground failure, earthquakes)?			
SECTION 7 – ENVIRONMENTAL CHANGE				
	Questions to be considered. Will the proposed project be subject to, or affected by...	Yes/no/ N.A./ brief description	Is this likely to result in a significant impact on the project – yes/no? Negative or positive? Long-term, short-term or irreversible?	Does the potential impact on the project need to be further investigated? Will it require management?
	7.1 Loss of land from shoreline change or coastal erosion, especially associated with extreme weather events?			
	7.2 Sea-level rise?			
	7.3 Flooding from high tides, large swells, extreme rainfall or storm-related events?			
	7.4 Other impacts related to climate change or climate variability?			

SECTION 8 – UNCERTAINTY SURROUNDING POTENTIAL IMPACTS AND RISKS		
Questions to be considered	Yes/no/N.A./brief description	Is further investigation required?
8.1 Are the potential project impacts and risks easily identified and well-understood?		
8.2 Are cumulative impacts in the project's area of influence well understood and have they been properly analysed?		
SECTION 9 – BROADER POLICY AND PLANNING CONTEXT		
Questions to be considered	Yes/no/N.A./brief description	Is further investigation required?
9.1 Are there particular goals, targets or obligations under government policies, plans or legislation that are relevant to this project?		
9.2 Is the project relevant to any MEA commitments or obligations? (e.g. CBD, CMS, CITES, Ramsar, Stockholm Convention, MARPOL, UNCLOS, UNCCD, UNFCCC)		
9.3 Are there any areas within or around the proposed project site that are protected under international, national or local laws?		
RECOMMENDATION:		
<input type="checkbox"/>	EIA required	
<input type="checkbox"/>	EIA not required. No conditions recommended for the development approval	
<input type="checkbox"/>	EIA not required. It is recommended the following conditions be attached to the development approval:	
REASONS FOR RECOMMENDATION:		
Name(s) and job title(s) of screening officer(s):		
Ministry/department:		
Signature(s):		
Date:		

TOOL 2 Terms of reference template

A generic terms of reference (ToR) template is provided below, to assist EIA officers with drafting ToR for different projects. The template covers a range of topics that are often addressed in an EIA report and it can be modified, shortened or added to by EIA officers, depending on the type of project under assessment, i.e. depending on a project's size, scale of influence, environmental setting, and industry sector.

The length of the ToR will vary depending on a project's environmental risks or anticipated impacts. Projects posing a high level of risk, with significant, anticipated impacts will have longer ToR and be required to provide more information than low risk, low impact projects.

ToR preparation should be guided by a country's EIA legislation, regulations and policies. ToR developed for a particular project will not only list general topics but also include specific information requests related to the project's anticipated impacts.

Sometimes a proponent may draft their own ToR, or develop ToR in collaboration with EIA officers. The final ToR should be agreed to by the EIA administrator and proponent, prior to moving forward with the EIA process.

Clear ToR help proponents and consultants to prepare a quality EIA report with sufficient and relevant information, so that a project's likely impacts on the environment and the likely impacts of the environment on a project can be adequately analysed and understood. For example, ToR for a tourist resort might require a proponent to provide detailed information about the sourcing of potable water and anticipated impacts on local water resources, the treatment and disposal of wastewater, the management of solid waste, set-back distances for buildings situated along the coastline, and generation of training and employment

opportunities for local communities. ToR for a seawall project might request detailed information about coastal hydrology and weather patterns, seabed bathymetry, coral and seagrass communities, and local fishing grounds and how they are accessed and used by village communities.

The following definitions are important for using the ToR template:

- 'environment' includes natural and biophysical, social (people, culture, health, heritage, amenity) and economic aspects, as well as the relationships between these different aspects;
- 'project footprint' is the land and/or ocean area occupied by project buildings, facilities, infrastructure or activities;
- 'area of influence' is the area affected by a development project, which is beyond the project footprint. It may be upstream and/or downstream of the project site and include the wider catchment, watershed, coastal/ocean zone, airshed or buffer zones; an off-site resettlement zone; and areas that are culturally significant or used for livelihood activities;
- 'impacts' include impacts of the project on the environment, and impacts of the environment on the project due to environmental hazards and environmental change processes;
- 'environmental hazards' include hazards that are natural (e.g. cyclone, flood, earthquake), human-induced (e.g. oil spill) or technological (e.g. infrastructure failure);
- 'environmental change processes' include climate change; and
- 'mitigation/management measures' include climate change adaptation measures.



The Pacific islands region is becoming increasingly urbanised. EIA is important for maximising positive development outcomes and minimising adverse effects on local communities and their environments. Photo: Melanie Bradley

EIA REPORT – TERMS OF REFERENCE TEMPLATE

SECTION 1 – EXECUTIVE SUMMARY

Present a concise, non-technical outline of the proposed project and each chapter of the EIA report. Include the results of impact and risk assessments, the proposed environmental management and mitigation measures, and the conclusions reached.

Translate the executive summary into relevant local language(s) to support community interest and participation in the EIA process.

SECTION 2 – TABLE OF CONTENTS

SECTION 3 – GLOSSARY, LIST OF ACRONYMS/ABBREVIATIONS

SECTION 4 – INTRODUCTION

Provide an **overview of the project and the proponent**, including information such as:

- 4.1 Project name, background and general description
- 4.2 Project purpose and objectives (including environmental performance objectives)
- 4.3 Project justification (including project need)
- 4.4 Profile of project proponent
- 4.5 Contact details for the proponent/project manager

SECTION 5 – POLICY AND LEGAL FRAMEWORK

Outline **relevant policies, guidelines and laws** that apply to the project and the approvals that need to be obtained from different government agencies, for instance:

- 5.1 National, regional, provincial or customary laws and regulations
- 5.2 Multilateral Environmental Agreements
- 5.3 Industry sector plans, policies or codes of practice
- 5.4 Health, safety, hazard and risk management standards
- 5.5 Current agreements between government and the proponent
- 5.6 Environmental policies of any financing/funding organisations involved in the project
- 5.7 The proponent's environmental management and compliance record

SECTION 6 – PROJECT DESCRIPTION AND JUSTIFICATION

Present a **detailed description of the project** and provide justification for its development, covering:

- 6.1 Project details
 - Project footprint (i.e. location, size and layout), including a description of how the project sits within the landscape/seascape and its area of influence
 - Maps of the project footprint and surrounding area of influence, illustrating its proximity to environmental features (e.g. topography, existing land/sea use, watercourses, resource deposits, towns/villages/settlements, transport infrastructure, natural/cultural/ecological assets)
 - Project activities, components, infrastructure and design, including technology and equipment likely to be used
 - Predicted resource and public infrastructure requirements, including rates of extraction or demand (e.g. energy, water, transport, minerals, hazardous materials), and any competition for resources or infrastructure that may occur with other projects or the local community
 - Workforce size and accommodation
 - Predicted type and quantity of waste outputs (e.g. liquid and solid wastes, gas/air emissions)
 - Implementation schedule, with key steps and tasks (e.g. timeline for construction, operation, decommissioning, rehabilitation, closure), and expected project lifespan
 - Project cost estimates and funding sources, including any uncertainties or assumptions underlying the estimates
- 6.2 Analysis of alternatives
 - Alternative project sites, designs, technologies, timelines; including alternatives that address environmental hazards and environmental change processes
 - Advantages and disadvantages of alternatives (e.g. cost, availability of technology)
 - Rationale for selection of preferred options
- 6.3 Project benefits
 - Benefits accruing to the local area, island, country, region (e.g. new or upgraded physical infrastructure, improved environmental conditions, increased resource availability, employment/livelihood/training opportunities, tax revenue, royalties, better health or educational facilities, community development programmes)
 - Project relevance in the light of existing local or national development and/or future development plans
- 6.4 Cost-benefit analysis
 - Identification, valuation and comparison of the costs (disadvantages) and benefits (advantages) of the project, from a whole-of-society perspective (i.e. including the perspectives of the proponent, government and stakeholders)

SECTION 7 – DESCRIPTION OF THE BASELINE ENVIRONMENT

Provide a detailed description of baseline (i.e. current or existing) environmental conditions **relevant to the project and its area of influence**, to develop awareness and understanding of important environmental features, patterns and trends; to support identification of potential impacts of the project on the environment and potential impacts of the environment on the project (section 8); and to assist with the formulation of impact mitigation measures (section 10). The level of examination and effort that is required to adequately describe different aspects of the environment will depend on the type of project, its scale of operation, its physical setting and its area of influence.

In detailing the baseline environment it is important to state what is known or unknown, what assumptions have been made, what methods have been used for data collection and how reliable the data/information is. Studies or surveys undertaken by the proponent, their consultant, or third party researchers, should be adequately detailed and referenced (section 14).

Where relevant, the following aspects of the environment should be described:

- 7.1 Climate (e.g. including temperature, rainfall/evaporation, flooding, drought, winds, extreme weather events, climate change projections and climate change elements likely to affect the project)
- 7.2 Topography, geology and soils (e.g. significant landscape features and characteristics; landscape gradient or slope; land capability and availability; seismic characteristics and earthquake and volcanic potential; areas vulnerable to landslides, rock fall, erosion)
- 7.3 Land tenure, zoning and use (e.g. community food gardens, agriculture, national parks, sensitive habitat, community or public reserves, village settlements, cemeteries, manufacturing industry)
- 7.4 Water (e.g. surface and groundwater quantity and quality; site hydrology; local catchment area; upstream and downstream water uses/users; areas vulnerable to flooding, inundation or storm surges)
- 7.5 Marine (e.g. coastal hydrology, tides, waves, currents, storm surge, salinity, sea water temperature, suspended load, seabed bathymetry)
- 7.6 Air (e.g. existing sources of air emissions; ambient air quality parameters such as nitrogen dioxide, sulphur dioxide, carbon monoxide, lead, PM₁₀ particles; location of nearest sensitive receptors)
- 7.7 Noise (e.g. baseline noise levels and noise pollution; location of nearest sensitive receptors)
- 7.8 Flora (e.g. plant species and communities within the project and surrounding area; native, endemic, threatened, invasive or culturally-significant species; areas subject to previous habitat clearing or disturbance; species, plant communities or habitat vulnerable to environmental hazards and environmental change)
- 7.9 Animal life (e.g. animal species and communities within the project and surrounding area; native, endemic, threatened, migratory, invasive or culturally-significant species; habitat within and adjacent to the project area suitable for species of conservation significance; species, animal communities or habitat vulnerable to environmental hazards and environmental change)
- 7.10 Human communities (e.g. towns/villages/settlements; population and local demographics; access to education, literacy level and educational attainment; housing; energy and water resource access and use; land use, gardens and subsistence dependency; natural resource use; transport and other infrastructure; cultural traditions; community structure and governance systems; marginalised groups; community health status; social infrastructure and services e.g. health care, education, recreation; landscape and visual amenity; vulnerability to environmental hazards and environmental change)
- 7.11 Local and national economy (e.g. skills, livelihoods and formal/informal employment; economic and business conditions; distribution of income; major sectors and industries)
- 7.12 Social/cultural resources and heritage (e.g. objects or sites of social/cultural significance, cultural and archaeological assets)

SECTION 8 – IMPACT ASSESSMENT

8.1 Assess and describe **potential impacts of the project on the environment**. The impact assessment should detail negative and positive; immediate, short-term and long-term; unavoidable, irreversible and reversible impacts. In conducting the impact assessment give consideration to:

- all relevant aspects of the environment (section 7, description of the baseline environment) and how they are likely to be changed or affected by the project, either directly or indirectly. This should include assessment of how the project may exacerbate environmental hazards and environmental change processes
- the nature of changes or affects, including negative consequences and/or expected benefits
- over what area, or on what scale, changes or affects are likely to take place
- changes or affects that will arise at different stages of the project (e.g. during construction, operation, production, decommissioning, closure)

8.2 Assess and describe **potential impacts of the environment on the project**. The impact assessment should detail negative and positive; immediate, short-term and long-term; unavoidable, irreversible and reversible impacts. In conducting the impact assessment give consideration to:

- all relevant environmental hazards, and how they are likely to change or affect the project, either directly or indirectly (e.g. weather-related hazards such as heavy rain, cyclones; water-related hazards such as flooding, tidal waves; geological hazards such as landslides, ground failure, earthquakes, tsunami)
- environmental change processes, and how they are likely to change or affect the project, either directly or indirectly (e.g. climate change and associated processes such as sea level rise, increased cyclone intensity; loss of land from coastal erosion and shoreline change)
- the nature of changes or affects, including negative consequences and/or expected benefits
- over what area, or on what scale, changes or affects are likely to take place

Explain the methods used for impact assessment, such as modelling studies, site or field-based surveys, or review of existing similar situations or previous studies.

In detailing impacts it is important to acknowledge what is known or unknown, what assumptions have been made, how reliable the data and analyses are, and whether any information deficiencies or uncertainties have influenced the conclusions reached.

SECTION 9 – CUMULATIVE IMPACTS

Examine the project in the context of **previous, existing and known future developments**. This will help to ensure that the project's potential impacts are not considered in isolation and that cumulative impacts have been adequately considered in the development of the EIA report and EMP.

Cumulative impact assessment can include an evaluation of changes in:

- 9.1 Land and seascape processes and functions (e.g. landscape hydrology, coastal stability)
- 9.2 Natural resource quality and availability (e.g. water, energy, critical habitat for important flora and fauna)
- 9.3 Social and community dynamics (e.g. population growth, traffic volumes, in-migration)
- 9.4 Economic conditions (e.g. industry development, job opportunities, cost of living)

For identified cumulative impacts, assess if they will be permanent. If they are not likely to be permanent, specify what steps will be taken to minimise long-term negative effects.

SECTION 10 – ENVIRONMENTAL MANAGEMENT

Provide a **draft environmental management plan (EMP)**, including a detailed discussion of the mitigation measures that can be feasibly undertaken, and explain how these mitigation measures will address the identified negative and positive impacts.

Also identify any best practices or industry standards the proponent intends to commit to, as well as any optimisation measures to be taken to strengthen or enhance positive impacts.

The draft EMP should cover all phases of the project, from construction through to operation, decommissioning, closure and post-closure (where relevant). It should be further developed and refined following the conclusion of the EIA process. Provision should also be made for periodic review of the EMP once the project becomes operational.

Recommended topics to be included in the EMP document:

- 10.1 Environmental performance objectives for the project
- 10.2 The proponent's environmental management framework, i.e. who will have responsibility for overseeing the EMP, the implementation of different mitigation measures, incident response, environmental monitoring and reporting
- 10.3 Specialised management plans with a high level of operational detail for sensitive or high-risk aspects of the project (e.g. a waste management plan, a water management plan, an erosion and sediment control plan, a disaster management plan, social impact management plan – which may include a benefit sharing agreement, resettlement plan, in-migration management plan, climate change adaptation plan)
- 10.4 Evidence that mitigation measures and specialised management plans are likely to be effective when implemented
- 10.5 A detailed monitoring plan, including performance criteria for measuring the extent of environmental impacts, and/or the success of mitigation measures; and for ensuring early detection of impacts. The monitoring plan should also include a schedule for reporting on project activity outcomes and monitoring results to regulatory authorities; and it should list the regulatory authorities that will be reported to
- 10.6 Environmental management expectations and stakeholder consultation requirements to be placed on project contractors
- 10.7 Provisions for independent auditing (especially in the case of high-risk projects)
- 10.8 Staffing and equipment requirements, allocated budget, and any training programmes or capacity development necessary to ensure successful EMP implementation
- 10.9 A process for responding to accidents, unanticipated or emergency incidents
- 10.10 A process for managing and responding to stakeholder concerns or complaints

It is advisable to cross-reference different elements of the EMP to relevant text in the EIA report.

SECTION 11 – LOCAL COMMUNITY, LAND/RESOURCE OWNER AND WIDER STAKEHOLDER ENGAGEMENT AND CONSULTATION

Include details of **engagement and consultation activities** such as:

- 11.1 Dates, types and methods of engagement and consultation, and outcomes to date
- 11.2 Stakeholder mapping and identification of key stakeholders
- 11.3 Key findings from engagement and consultation, including a summary of issues and concerns raised by various stakeholder groups (directly affected persons; businesses; NGOs; civil society, women's, leaders and church groups) and how these will be addressed or have been incorporated into project design and mitigation measures
- 11.4 Future engagement and consultation activities planned to ensure stakeholders remain informed about the project
- 11.5 Information on negotiation and agreements with directly affected persons and land/resource owners

SECTION 12 – CONCLUSIONS AND RECOMMENDATIONS

Present the main conclusions of the EIA report and the proponent's suggested recommendations for progressing their project, including key environmental management and mitigation measures that should be undertaken.

SECTION 13 – DISCLOSURE OF CONSULTANTS

State the names, qualifications and contact details of all consultants responsible for preparing the EIA report, and the services or work they completed.

SECTION 14 – REFERENCES

Appropriately reference all information sources that have been used or consulted during EIA report preparation (e.g. using the Harvard referencing system). Information sources may include studies or surveys undertaken by the proponent, their consultant, or third party researchers.

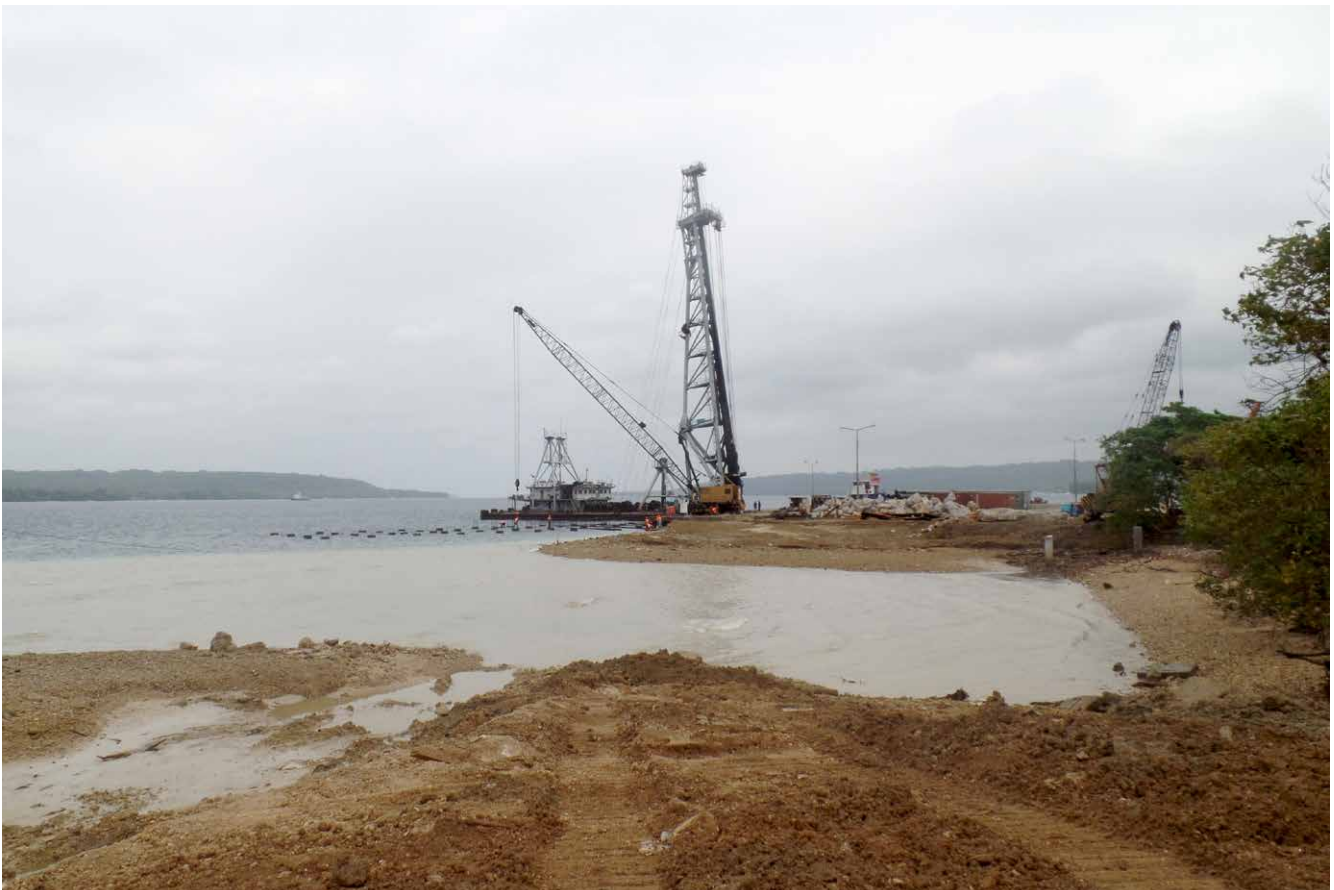
SECTION 15 – APPENDICES

Include appendices that support the main text and that do not contain unnecessary information. Appendices may present:

- Relevant environmental studies and reports
- Detailed technical information
- Draft management plans
- A table listing how the ToR have been addressed, cross-referenced to relevant sections of the EIA report
- A table listing environmental mitigation/management commitments made by the proponent
- Evidence of project support from stakeholders

GENERAL ADVICE FOR EIA REPORT PREPARATION

- The EIA report should be based on a level of analysis and detail that reflects the significance of the project's potential environmental impacts, and that allows government and interested stakeholders to clearly understand the project's likely environmental consequences
- Information provided in the report should be objective, clear and easily understood by the general reader
- Different sections of the ToR may be combined or re-ordered, if this helps to present information in a clear and logical manner
- Maps, plans and diagrams should be prepared using an appropriate scale, resolution and clarity
- Technical jargon should be avoided or accompanied by a clear, understandable explanation
- Cross-referencing should be used to avoid unnecessary duplication of text
- Key project impacts should be explained in a culturally-appropriate format, using graphics and illustrations to assist with interpretation, where relevant
- Spatial data presented in the report should be provided to government as importable Geographic Information System shape files



Soil erosion and sediment control measures are important for developments that involve land-moving and earthworks. If these measures are not effectively applied, adjacent waterways can suffer from siltation, which can affect water quality, coral reefs and fish nurseries. Photo: Melanie Bradley

TOOL 3 EIA report review template

This tool has been designed to guide the EIA report reviewer and to help them determine if the EIA report contains sufficient information and detail, and meets an acceptable standard; what key issues and impacts the EIA report highlights for the development; and what recommendations or recommended conditions should be provided to the development approval authority.

The order in which the review questions are presented in the template may not follow the order in which information is presented in the EIA report. Sometimes a reviewer will need to move back and forth between the template questions during the review process.

If a question is irrelevant to a project it is appropriate to write 'N.A.' (not applicable) in the second column (for Section 2). The relevance of questions may depend on the nature, scale and location of a project, and potential impacts associated with the project.

The key to conducting a good EIA review is to examine the EIA report side-by-side with the ToR and to:

- identify issues and ask questions about the nature of the project and its impacts;
- take notes and record comments, especially regarding any issues and questions that arise; and
- carefully consider significant issues and impacts that will have a bearing on project approval.

The following definitions are important for this template:

- 'environment' includes natural and biophysical, social (people, culture, health, heritage, amenity) and economic aspects, as well as the relationships between these different aspects;
- 'project footprint' is the land and/or ocean area occupied by project buildings, facilities, infrastructure or activities;
- 'area of influence' is the area affected by a development project, which is beyond the project footprint. It may be upstream and/or downstream of the project site and include the wider catchment, watershed, coastal/ocean zone, airshed or buffer zones; an off-site resettlement zone; and areas that are culturally significant or used for livelihood activities;
- 'impacts' include impacts of the project on the environment, and impacts of the environment on the project due to environmental hazards and environmental change processes;
- 'environmental hazards' include hazards that are natural (e.g. cyclone, flood, earthquake), human-induced (e.g. oil spill) or technological (e.g. infrastructure failure);
- 'environmental change processes' include climate change; and
- 'mitigation/management measures' include climate change adaptation measures.

TEMPLATE – EIA REPORT REVIEW

SECTION 1 – PROJECT DETAILS		
Project reference no.		
Project name		
Project proponent (developer)		
Proponent's email address		
Proponent's phone number		
Project location (including coordinates, if available)		
Type and purpose of project (brief description)		
SECTION 2 – GENERAL QUESTIONS: ASSESSING THE COMPREHENSIVENESS AND ADEQUACY OF THE EIA REPORT		
Question(s)	Yes/no/N.A./brief description	Is follow-up required with the proponent (Y/N)? If so, briefly explain the follow-up required
2.1 Is the executive summary clearly written, does it cover the main impacts and findings, and has it been translated into relevant local language(s)? (This is important for ensuring the local community is aware of the project)		
2.2 Is a copy of the ToR provided with the EIA report? Does the EIA report adequately address the ToR?		
2.3 Is the information clearly and logically presented and able to be understood by decision makers and stakeholders? (Important to check if the text is clearly written and the maps/diagrams are high-quality)		
2.4 Is the information relevant and sufficient for the purpose of decision-making and setting conditions for development approval? (This question is important for determining if an EIA report can be accepted)		
2.5 Is the boundary of the project site clear and accurate? (An incorrect boundary may result in incomplete and/or inaccurate conclusions in the EIA report)		
2.6 Are the purpose(s) and objectives of the project explained so the reader can easily understand what the project is about and what it hopes to achieve?		
2.7 Is there an adequate and clear description of project scale, design, activities, components, infrastructure and schedule/timeframe? (The project should be described in enough detail so the reader can understand how the project will be constructed, how and over what timeframe it will operate, and what goods/services it will produce. The description should include diagrams, plans, maps, activity schedules)		
2.8 Is the expected rate of production described? (This is particularly important for industrial/manufacturing/processing plant projects)		
2.9 Is there sufficient description of the resources and public infrastructure required by the project during construction and operation? (This description should include where the resources/infrastructure will be sourced from and how they will be transported to the project site, if they are being sourced off-site)		

Question(s)	Yes/no/N.A./brief description	Is follow-up required with the proponent (Y/N)? If so, briefly explain the follow-up required
2.10 Are the expected types and quantities of waste outputs described? (e.g. liquid and solid wastes, gas/air emissions)		
2.11 Is the baseline environment clearly identified and comprehensively described, and is the information directly relevant to the project footprint and the project's area of influence? (Important aspects may include areas or features of particular biological, ecological, social, cultural or economic significance; and climate change scenarios and projections)		
2.12 Are reliable information sources used to describe the baseline environment and is the methodology robust? (e.g. well-designed field surveys conducted by the proponent or consultant; existing data; reliable studies conducted by other researchers; maps of the project area, including environmental hazard maps)		
2.13 Is there adequate identification and description of all potential impacts the project will have on the environment, including natural/biophysical, social and economic aspects? (This description should cover all likely, significant impacts arising from the project, including negative and positive; immediate, short-term and long-term impacts. The magnitude of the impacts should be estimated, where possible)		
2.14 Is there adequate identification and description of all potential impacts the environment will have on the project, due to environmental hazards and environmental change processes? (This description should cover all likely, significant impacts arising from the environment, including negative and positive; immediate, short-term and long-term impacts. The magnitude of the impacts should be estimated, where possible)		
2.15 Has a draft environmental management plan (EMP) been developed that describes suitable mitigation measures that directly address all significant negative impacts identified in the EIA report? (This should include impacts of the project on the environment, and impacts of the environment on the project. Impacts that cannot be addressed through mitigation measures should be identified, and compensation measures should be proposed, where appropriate. Implementation steps should be clearly outlined for all mitigation measures)		
2.16 Does the EMP include optimisation measures for enhancing significant positive impacts?		
2.17 Does the EMP include a monitoring and reporting plan for assessing the extent of impacts and/or the success of mitigation measures?		
2.18 Has a risk assessment been conducted to assess the relative significance of different impacts, and to help prioritise the management of significant negative impacts?		
2.19 Have feasible alternatives to the proposed project been adequately considered and evaluated? (This may cover alternative sites, designs, technologies, timelines)		

Question(s)	Yes/no/N.A./brief description	Is follow-up required with the proponent (Y/N)? If so, briefly explain the follow-up required
2.20 Has engagement and consultation with the local community, land/resource owners and other relevant stakeholders been adequate, inclusive and well-documented? (The report should outline who was engaged/consulted, when and how they were engaged/consulted, and how the proponent has responded to concerns and issues raised during engagement/consultation)		
2.21 Does the project adhere to government legislation, regulations, policies or guidelines?		
2.22 Is the project relevant to any MEA commitments or obligations, and do these need to be factored into the development approval?		
2.23 Have all data sources been identified and a list of references provided?		

SECTION 3 – IDENTIFICATION OF SIGNIFICANT OR OUTSTANDING ISSUES

Section & page no.	Identified issue(s)	Comment(s)/ question(s) relating to the issue(s)	Is/are the issue(s) dealt with in the environmental management section or another part of the EIA report? If so, does this address your comments and questions (Y/N)?	Is follow-up required with the proponent on the identified issue(s) (Y/N)? If so, briefly explain the follow-up required	Should the issue(s) be considered as part of the development approval and/ or the approval conditions (Y/N)? If so, briefly explain why

SECTION 4 – OTHER COMMENTS

--

RECOMMENDATION:

<input type="checkbox"/>	EIA report accepted. The following recommendations and conditions should be considered by the development approval authority:
--------------------------	---

<input type="checkbox"/>	EIA report not accepted. The following issues need to be addressed in the revision of the EIA report:
--------------------------	---

REASONS FOR RECOMMENDATION:

--

Name(s) and job title(s) of reviewing officer(s):
--

Ministry/department:

Signature(s):

Date:

TOOL 4 Risk assessment for EIA reports – an example approach

Risk assessment can be used by proponents or consultants when preparing EIA reports to examine the *consequences*, *probability* of occurrence, and relative *significance* of potential negative impacts associated with a development. Risk assessment uses explicit criteria, a defined rating methodology, and qualitative and quantitative evaluation to examine and classify negative impacts and to prioritise their management. Given there is often uncertainty surrounding potential impacts, risk assessment can bring some precision to the process of deciding on impact mitigation and management strategies.

In recent years different risk assessment approaches have been developed and applied to projects undergoing EIA, especially large-scale projects e.g. mining and energy developments. To provide an example of a risk assessment approach, a method developed by SRK Consulting²⁵ has been adapted for the Pacific context and is outlined below. This is one of many approaches that can be used to support the EIA process.

The method outlined below includes an assessment of four impacts to demonstrate how risk assessment can be incorporated into EIA reports. The impacts are: (1) soil erosion during project construction; (2) pumping of wastewater into the ocean during project operation; (3) degradation of a cultural heritage site; and (4) storm surge and flooding of a development and surrounds, closing down operations.

The benefits of incorporating risk assessment in an EIA report are that it provides a clear and concise summary of technical information and analyses; highlights the likely future consequences of development choices; and helps government and stakeholders to understand why particular management measures need to be put in place. Limitations sometimes experienced with risk assessment include terms and concepts being interpreted differently by different people, leading to different risk assessment results; cumulative impacts not being easily accounted for; and some impacts being difficult to assign to discrete categories.

In writing up risk assessment results it is important for proponents or consultants to clearly outline their rationale for assigning different ratings; to provide appropriate justification where the consequence or probability of an impact is expected to be reduced as a result of proposed mitigation measures; and to highlight any constraints, assumptions or uncertainties that influence their assessment.

It is also important to remember that risk assessment can help with making judgments about how to deal with impacts but it cannot be used to make judgments about the acceptability of impacts. The acceptability of impacts will depend on the values and preferences held by stakeholders, including the local community and local land/resource owners affected by a development.

²⁵ SRK Consulting: <http://www.srk.com/en>

RISK ASSESSMENT METHOD

STEP 1

Assign a rating and score for each of the three criteria (A-C) listed in the table below, and then add the scores to determine the *consequence* rating for an impact.

RATING	DEFINITION OF RATING	SCORE
A. Extent – the area over which the impact will be experienced		
Local	Confined to the project site or study area.	1
Wider catchment or province	Extends beyond the project site to the wider, surrounding area.	2
Island or national	Extends to the whole island or nation.	3
Regional or global	Extends to the Pacific region and potentially beyond.	4
B. Intensity – the magnitude of the impact i.e. whether the impact will result in minor, moderate or major environmental, economic and social (including human health) changes		
Low	Minor or negligible changes, disturbances, damages, injuries or health effects. Likely to generate minimal interest or concern amongst the local community/affected stakeholders. <u>Examples:</u> dust and exhaust gases from construction machinery; temporary or single exceedance of a pollution limit or threshold; first aid cases; minor discomfort or irritation from construction noise; increased traffic on local roads to transport construction materials to a project site.	1
Medium	Moderate changes, disturbances, damages, injuries or health effects. Likely to generate more prolonged interest or concern amongst the local community/stakeholders. <u>Examples:</u> generation of hazardous waste; large fish kill incident; frequent exceedance of a pollution limit or threshold; clearance of village food gardens; influx of workers from overseas for project construction; moderate disruption of daily life/work activities within a village; intermittent production of foul odour near a village; infrastructure damage from flooding or strong winds.	2
High	Major or severe changes, disturbances, damages, injuries or health effects. Likely to generate widespread and intense interest or controversy amongst local, national and regional communities/stakeholders. <u>Examples:</u> clearance of endangered species habitat; drawdown of limited groundwater supplies; large increase in suspended sediment levels from dredging; destruction of cultural artefacts; forced relocation of village settlements; permanent disabilities or fatalities; loss of coastal buildings and infrastructure due to extreme weather events.	3
C. Duration – the timeframe over which the impact will be experienced and its reversibility		
Short-term	Up to 2 years – impact is reversible or limited to when particular development activities or environmental events are taking place. Remediation or recovery is possible.	1
Medium-term	2 to 15 years – impact is reversible or limited to when particular development activities or environmental events are taking place. Remediation or recovery is possible.	2
Long-term	More than 15 years – impact is permanent or gradually reversible with sustained remediation and recovery efforts.	3

The combined score of the three criteria (extent, intensity, duration) corresponds to a *consequence* rating, as follows:

Combined score (A+B+C)	3 – 4	5 – 6	7 – 8	9 – 10
Consequence rating	Minor	Moderate	Major	Massive

STEP 1 EXAMPLES

(Note, there are no units of measurement attached to the example impacts, so they should be viewed as illustrative examples only)

Soil erosion during project construction:

Extent	Intensity	Duration	Consequence
Local 1	Medium 2	Short-term 1	Minor 4

Pumping of wastewater into the ocean during project operation:

Extent	Intensity	Duration	Consequence
Wider catchment 2	High 3	Medium-term 2	Major 7

Degradation of a cultural heritage site:

Extent	Intensity	Duration	Consequence
Local 1	High 3	Long-term 3	Major 7

Storm surge and flooding of a development and surrounds, closing down operations:

Extent	Intensity	Duration	Consequence
Wider catchment 2	High 3	Medium-term 2	Major 7

STEP 2

Assess the *probability* of the impact occurring according to the following definitions:

Probability – the likelihood of the impact occurring	
Improbable	Unlikely to occur during project lifetime < 20% chance of occurring
Possible	May occur during project lifetime 20%–60% chance of occurring
Probable	Likely to occur during project lifetime > 60%–90% chance of occurring
Highly probable	Highly likely to occur, or likely to occur more than once during project lifetime > 90% chance of occurring

STEP 2 EXAMPLES

Soil erosion during project construction:

Probability
Probable

Pumping of wastewater into the ocean during project operation:

Probability
Possible

Degradation of a cultural heritage site:

Probability
Highly probable

Storm surge and flooding of a development and surrounds, closing down operations:

Probability
Probable

STEP 3

Determine the overall *significance* of the impact as a combination of the *consequence* and *probability* ratings, as set out in the matrix below:

		PROBABILITY OF OCCURRENCE			
		Improbable	Possible	Probable	Highly probable
CONSEQUENCE OF IMPACT	Minor	VERY LOW	VERY LOW	LOW	LOW
	Moderate	LOW	LOW	MEDIUM	MEDIUM
	Major	MEDIUM	MEDIUM	HIGH	HIGH
	Massive	HIGH	HIGH	VERY HIGH	VERY HIGH

STEP 3 EXAMPLES

Soil erosion during project construction:

Consequence	Probability	Significance
Minor	Probable	LOW

Pumping of wastewater into the ocean during project operation:

Consequence	Probability	Significance
Major	Possible	MEDIUM

Degradation of a cultural heritage site:

Consequence	Probability	Significance
Major	Highly probable	HIGH

Storm surge and flooding of development and surrounds, closing down operations:

Consequence	Probability	Significance
Major	Probable	HIGH

STEP 4

State the level of *confidence* in the assessment of the impact as high, medium or low. The level of confidence will depend on the extent and type of information available, whether it is qualitative or quantitative, and whether it is based on direct measurements, extrapolated data, estimations or expert opinion.

STEP 4 EXAMPLES

- Soil erosion during project construction – *high*
- Pumping of wastewater into the ocean during project operation – *medium*
- Degradation of a cultural heritage site – *high*
- Storm surge and flooding of a development and surrounds, closing down operations – *high*

STEP 5

5(a) – identify and describe practical mitigation measures that can be effectively implemented to reduce the impact.

5(b) – assume mitigation measures have been implemented and reassess the impact, by following steps 1 to 4 again. The point of the second assessment is to examine how impact extent, intensity, duration and/or probability are likely to change, after mitigation measures have been put in place.

STEP 5 EXAMPLES

Soil erosion during project construction:

	Extent	Intensity	Duration	Consequence	Probability	Significance	Confidence
Without mitigation	Local 1	Medium 2	Short-term 1	Minor 4	Probable	LOW	High
Mitigation measures:							
<ul style="list-style-type: none"> • Preparation of a site-specific erosion and sediment control plan (ESCP) • ESCP to include measures such as: minimising land disturbance and clearing the smallest area of land practicable; staging the land clearing activities to minimise area exposed at any one time; installing a silt fence along the boundaries of the construction site; managing surface flows upstream of the project area; vegetating topsoil stockpiles as soon as possible; checking erosion and sediment controls daily and after rain 							
With mitigation	Local 1	Low 1	Short-term 1	Minor 3	Improbable	VERY LOW	High

Pumping of wastewater into the ocean during project operation:

	Extent	Intensity	Duration	Consequence	Probability	Significance	Confidence
Without mitigation	Wider catchment 2	High 3	Medium-term 2	Major 7	Possible	MEDIUM	Medium
Mitigation measures:							
<ul style="list-style-type: none"> • On-site wastewater collection and storage • Wastewater to be transported to provincial wastewater treatment facility • Monthly inspections of wastewater storage structures and transport vehicles to ensure there are no leakages • Inspection of wastewater storage structures and transport vehicles following extreme weather events 							
With mitigation	Wider catchment 2	Low 1	Medium-term 2	Moderate 5	Improbable	LOW	Medium

Degradation of a cultural heritage site:

	Extent	Intensity	Duration	Consequence	Probability	Significance	Confidence
Without mitigation	Local 1	High 3	Long-term 3	Major 7	Highly probable	HIGH	High
Mitigation measures:							
<ul style="list-style-type: none"> • Alert local chiefs of discovery of cultural heritage artefacts • Safely collect cultural heritage artefacts, with approval and guidance from local chiefs and the assistance of an archaeologist, and provide artefacts to the national museum • Provide long-term (50 years) financial support for upkeep of the cultural heritage exhibit at the national museum, based on recommendations from local chiefs 							
With mitigation	Local 1	Medium 2	Long-term 3	Moderate 6	Highly probable	MEDIUM	Medium

Storm surge and flooding of a development and surrounds, closing down operations

	Extent	Intensity	Duration	Consequence	Probability	Significance	Confidence
Without mitigation	Wider catchment 2	High 3	Medium-term 2	Major 7	Probable	HIGH	High
Mitigation measures: <ul style="list-style-type: none"> • Essential buildings and infrastructure to be set-back 100 m from coast and built on raised platforms • Revegetation of coastal zone with mangroves and other native vegetation • Generator to be on-hand for back-up power 							
With mitigation	Wider catchment 2	Medium 2	Short-term 1	Moderate 5	Probable	MEDIUM	Medium

STEP 6

Summarise all the impact assessment ratings in a single table that can be included in the executive summary or concluding section of an EIA report.

STEP 6 EXAMPLES

IMPACT	CONSEQUENCE	PROBABILITY	SIGNIFICANCE	CONFIDENCE
Soil erosion during project construction	Minor	Probable	Low	High
With mitigation	Minor	Improbable	Very low	High
Pumping of wastewater into the ocean during project operation	Major	Possible	Medium	Medium
With mitigation	Moderate	Improbable	Low	Medium
Degradation of a cultural heritage site	Major	Highly probable	High	High
With mitigation	Moderate	Highly probable	Medium	Medium
Storm surge and flooding of development and surrounds, closing down operations	Major	Probable	High	High
With mitigation	Moderate	Probable	Medium	Medium

7.0 Appendices

APPENDIX 1 Legislation governing the application of EIA in Pacific island countries

PACIFIC ISLAND COUNTRY	LEGISLATION
Cook Islands	<i>Environment Act 2003</i>
Federated States of Micronesia	<i>Environmental Protection Act 1980 (National)</i> <i>Environmental Impact Assessment Regulations 1989 (National)</i> <i>Environmental Protection Act 1994 (Chuuk)</i> <i>Regulations for Environmental Impact Assessment (Chuuk)</i> <i>Protection of Environment Act (Kosrae)</i> <i>Regulations for Development 1994 (Kosrae)</i> <i>Environmental Protection Act 1992 (Pohnpei)</i> <i>Environmental Impact Assessment Regulations (Pohnpei)</i> <i>Environmental Quality Protection Act 1987 (Yap)</i> <i>Regulations for Environmental Impact Assessment 1995 (Yap)</i>
Fiji	<i>Environment Management Act 2005</i> <i>Environment Management (EIA Process) Regulations 2007</i>
Kiribati	<i>Environment Act 1999, Environment (Amendment) Act 2007</i> <i>DRAFT Environment (General) Regulation 2011</i>
Nauru	No legislation enacted
Niue	<i>Environment Act 2015</i>
Palau	<i>Environmental Quality Protection Act 1981</i> <i>Environmental Impact Statement Regulations 1996</i>
Papua New Guinea	<i>Environment Act 2000</i> <i>Environment (Permits) Regulation 2002</i> <i>Environment (Prescribed Activities) Regulation 2002</i>
Republic of the Marshall Islands	<i>National Environmental Protection Act 1984</i> <i>Environmental Impact Assessment Regulations 1994</i>
Samoa	<i>Planning and Urban Management Act 2004</i> <i>Planning and Urban Management (Environmental Impact Assessment) Regulations 2007</i>
Solomon Islands	<i>Environment Act 1998</i> <i>Environment Regulations 2008</i>
Tonga	<i>Environmental Impact Assessment Act 2003</i> <i>Environmental Impact Assessment Regulations 2010</i>
Tuvalu	<i>Environment Protection Act 2008</i> <i>Environment Protection (Environmental Impact Assessment) Regulations 2014</i>
Vanuatu	<i>Environmental Protection and Conservation Act 2010</i> <i>Environmental Impact Assessment Regulations 2011</i>



Compliance monitoring and enforcement is an important part of the EIA process. Regular site inspections by government officers should be part of an ongoing monitoring and enforcement programme. Photo: Melanie Bradley



SPREP
Secretariat of the Pacific Regional
Environment Programme



ACP MEAs 2

An initiative of the African, Caribbean and Pacific Group of
States funded by the European Union

