



Integrated Strategic Environmental Assessments in Post-Crisis Countries

A GUIDANCE NOTE FOR INTEGRATING DISASTER RISK REDUCTION
AND CLIMATE CHANGE ADAPTATION IN SUSTAINABLE RECONSTRUCTION
AND DEVELOPMENT PLANNING



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Executive Summary

In the early period after conflicts or disasters, it is crucial to guide the initial stages of recovery and reconstruction so that new developments minimize environmental impacts and build resilience to disaster, climate and conflict risks. Post-Crisis Integrated Strategic Environmental Assessment (Post-Crisis Integrated SEA) is an approach that emerged from the post-crisis and development process of the Northern Province of Sri Lanka, after 33 years of conflict. There was an urgent need to facilitate a process to 'build back better' and an opportunity to ensure its environmental sustainability, as well as reduce disaster and climate risks, through an information-led multi-stakeholder dialogue. This process was led by the UN Development Programme (UNDP) (2009 - 2013) and was subsequently carried forward by UN Environment through a two-year program (2016 - 2017). The program focused on capacity-building and documenting lessons learned in two additional countries, Nepal and Côte d'Ivoire. In Nepal, the project enhanced capacities to address post-earthquake reconstruction efforts. In post-conflict Côte d'Ivoire, the project focused on sustainable development planning efforts. In Sri Lanka, the main outcomes included an 'Opportunity Map', which led to collective decision-making to reduce potential land and resource use conflicts, disaster risks and ultimately to the declaration of new protected areas. In all three project countries, the data collection process built trust, consensus, databases on key environmental sensitivities, hazards and enhanced planning capacities to implement the Integrated SEA recommendations.

This Guidance Note was drafted to document lessons learned in the three project countries and in doing so, it provides a step-by-step practical guide for countries in post-crisis situations to undertake Integrated SEAs. **The Integrated SEA approach builds upon current SEA practices, while placing greater emphasis on integrating disaster risk and climate change impacts into a participatory data collection, mapping and planning process.** This publication provides practical guidance on how to manage the process of assembling data and obtaining consensus from a wide range of actors to produce robust and widely accepted 'Opportunity Maps' for sustainable reconstruction and development. Recommendations from Integrated SEA processes should aim to be institutionalized into formal land-use planning processes. **As such, Post-Crisis Integrated SEAs can be considered a bridge between post-crisis humanitarian action and sustainable development planning.**

This Guidance Note is intended for decision-makers, policy-makers and practitioners who support the post-crisis recovery, reconstruction and development planning processes in developing countries, such as Post Disaster Recovery Frameworks:

- Reconstruction authorities;
- Planning and environmental authorities;
- Development partners, development banks and environmental and humanitarian agencies supporting the transition to development planning.

This Guidance Note covers basic principles and reasons for conducting Integrated SEA in post-crisis contexts, namely:

- Provides an initial screening tool of potential projects for fast-tracking decision-making;
- Guides resources in order to collect more relevant data for sustainable reconstruction and development;
- Gives an overview of key environmental and hazard-related issues;
- Directs attention to areas or projects requiring more detailed study and Environmental Impact Assessments (EIAs), rather than conducting EIAs piecemeal;
- Leads to greater protection of valued environmental assets while safeguarding against potential hazards and climate change impacts;
- Creates ownership of the planning process in order to ensure longer-term sustainability of Integrated SEA recommendations and outcomes;
- Provides a platform for inter-sectoral dialogue and builds trust to reduce potential conflicts over development projects;
- Turns the impetus of post-crisis situations into opportunities for more resilient and sustainable planning processes.

Above all, this Guidance Note is intended as a practical, step-by-step document, illustrated with lessons learned on applying Post-Conflict Integrated SEAs in Sri Lanka, Nepal and Côte d'Ivoire. For more information and to access the country-specific reports, see: www.unenvironment.org/drr

ACRONYMS

ANDE	Agency for the Environment (Côte d'Ivoire)
ARSO	Autorité pour l'Aménagement de la région du Sud-Ouest / South-Western Planning Authority (Côte d'Ivoire)
BCPR	Bureau of Crisis Prevention and Recovery
CNTIG	Comité National de Télédétection / National Committee for Remote Sensing (Côte d'Ivoire)
CSO	Civil Society Organization
DOLIDAR	Department of Local Infrastructure Development and Agricultural Roads (Nepal)
DRR	Disaster Risk Reduction
EHl	Environment and Hazard Indicators
EIA	Environmental Impact Assessment
GIS	Geographic Information System
IAIA	International Association of Impact Assessments
ICIMOD	International Centre for Integrated Mountain Development
IEE	Initial Environmental Examination (Nepal)
INS	Institut National Statistique / National Institute of Statistics (Côte d'Ivoire)
ISEA	Integrated Strategic Environmental Assessment
IUCN	International Union for the Conservation of Nature
JEU	Joint Unit of UN Environment and the UN Office for the Coordination of Humanitarian Affairs
LS	Landslide Susceptibility
NCEA	Netherlands Commission for Environmental Assessment
NGO	Non-Governmental Organization
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Cooperation and Development
OECD DAC	Organization for Economic Cooperation and Development – Development Assistance Committee
PDRF	Post Disaster Recovery Framework
SEA	Strategic Environmental Assessment
UNDA	United Nations Development Account
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
WWF	World Wide Fund for Nature

TABLE OF CONTENTS

Executive Summary	5
Acronyms	7
1. Introduction - Why this Guidance Note?	10
2. What is Post-Crisis Integrated SEA?	12
3. How to undertake Post-Crisis Integrated SEA	18
STAGE 1 - ESTABLISH THE CONTEXT	19
<i>(Timeline: 0-3 months post-crisis)</i>	
Rapid screening	20
Identify stakeholders for trust-building and conflict-resolution	21
STAGE 2 - IMPLEMENT	22
<i>(Timeline: 1-12 months post-crisis)</i>	
Collect data / Conduct participatory Opportunity Mapping which integrates disaster risk reduction and climate change adaptation	22
Environmental sensitivity maps	23
Hazard maps, conflict maps and climate change projections	23
Proposed Development maps	23
Identify development scenarios and mitigation options	25
STAGE 3 - INFORM AND INFLUENCE DECISION-MAKING	26
<i>(Timeline: Throughout the process)</i>	
STAGE 4 - MONITOR AND EVALUATE	27
<i>(Timeline: Usually at the end but needs to be considered from the beginning)</i>	
Establish multi-stakeholder monitoring and evaluation	27
Revise and adjust	27
4. Case Studies: Post-Crisis Integrated SEA in Sri Lanka, Nepal and Côte D'Ivoire	28
SRI LANKA	29
NEPAL	34
CÔTE D'IVOIRE	38
5. Conclusions	40
6. Acknowledgements	42
7. References	42
ANNEX 1. LIST OF CONTRIBUTORS	44
ANNEX 2. ADDITIONAL RESOURCES AND RELEVANT DATASETS	44
ANNEX 3. EXAMPLES OF INDICATORS	46
Environmental	46
Cultural Heritage	46
Hazard/climate related	46



Langtang Valley, Nepal, 2017. Credit: Karen Sudmeier-Rieux, UN Environment (2017)

1. Introduction - Why this Guidance Note?

In the aftermath of disasters and conflicts, affected countries often experience a sense of urgency to rapidly restart development. Countries are under pressure to fast track reconstruction but are challenged by restricted institutional capacities and tools for efficient decision-making. At the same time, accelerated development and reconstruction create pressure on natural resources. Once the immediate relief operations have concluded, governments can focus on the reconstruction phase, which brings specific challenges: fragmented government structures, lack of information, sometimes incompatible development projects, sometimes in chaotic situations. New development activities in such contexts, if not planned sustainably, can have negative environmental impacts that undermine long-term economic growth. However, post-crisis situations also present opportunities. Funding may be available and must be spent within a narrow timeframe, creating the impetus to act quickly. However, the question is how to reconstruct better and more sustainably in the short-term with the goal of building long-term resilience.

Post-Crisis Integrated Strategic Environmental Assessment (Post-Crisis Integrated SEA) is an approach that emerged from the post-crisis settlement and development process of the Northern Province of Sri Lanka after 33 years of conflict. There was an urgent need to facilitate the process to 'build back better' and an opportunity to ensure environmental sustainability, and reduce disaster and climate risks, through an information-led multi-stakeholder dialogue. This process was led by the UN Development Programme (UNDP) (2009-2013), with support from UN Environment. Subsequently, the Post-Crisis Integrated SEA process was carried forward by UN Environment by a two and a half year project (2016-2018) that documented lessons learned in Sri Lanka and promoted further uptake and sustainability of lessons learned and good environmental practices. Funded by the United Nations Development Account (UNDA) and the Government of Norway, the project built national capacities in Sri Lanka, Côte d'Ivoire and Nepal to apply Post-Crisis Integrated SEA.

The Post-Crisis Integrated SEA process in Sri Lanka consisted of a multi-stakeholder primary data collection and dialogue process to ensure more sustainable reconstruction of the Northern Province of Sri Lanka. Data were collected on a range of environmental and cultural sensitivities (such as wildlife corridors, high value forests, water quality, and archaeological sites), proposed development initiatives, hazard-prone areas and projected water supply issues. A key outcome was an 'Opportunity Map' that led to collective decision-making to reduce potential land and resource-use conflict and disaster risks, leading to the declaration of new protected areas. The data collection process built trust and consensus, and enhanced planning capacities to implement the Integrated SEA recommendations. Although there were challenges for full uptake of recommendations due to weak institutional capacities, the Integrated SEA approach has been adopted as a standard for SEA processes in Sri Lanka.

Subsequently, Nepal and Côte d'Ivoire were selected to undertake Post-Crisis Integrated SEAs through a two-year (2016-2017) capacity-building process of national and local government stakeholders, non-governmental organizations (NGOs), representatives from academia and civil society organizations (CSOs). Nepal was recovering from the April 26, 2015 earthquake and Côte d'Ivoire from a ten-year conflict. The Government of Nepal was interested in a tool for rapid decisions on sustainable reconstruction, and Côte d'Ivoire was seeking guidance on how to apply SEA legislation, which was passed in 2013 but yet to be applied.

This Guidance Note was drafted to document lessons learned from the experiences in the three project countries, and to outline key methodological principles for conducting Integrated SEAs in post-crisis countries. It builds on principles and guidance established by the Organization for Economic Cooperation and Development (OECD) in the Development Assistance Committee (DAC) publication, *Applying Strategic Environmental Assessment, Guidance publication* (OECD, 2006) and the OECD publication, *Strategic Environmental Assessment and Post-Conflict Development* (OECD, 2010b). It provides additional experience in applying the OECD principles to post-crisis situations through three case studies: post-conflict Northern Province of Sri Lanka, post-earthquake Nepal and post-crisis Côte d'Ivoire, applied to the municipality of San-Pédro, the second largest port for exporting cocoa, which was heavily affected by flooding.

This Guidance Note is intended for decision-makers, policy-makers and practitioners who support the post-crisis recovery, reconstruction and development planning processes in developing countries, such as Post Disaster Recovery Frameworks:

- Reconstruction authorities;
- Planning and environmental authorities;
- Development partners, development banks and environmental and humanitarian agencies supporting the transition to development planning.

This Guidance Note covers basic principles and reasons for conducting Integrated SEA in post-crisis contexts, namely:

- Provides an initial screening tool of potential projects for fast-tracking decision-making;
- Guides resources in order to collect more relevant data for sustainable reconstruction and development;
- Gives an overview of key environmental and hazard-related issues;
- Directs attention to areas or projects requiring more detailed study and Environmental Impact Assessments (EIAs), rather than conducting EIAs piecemeal;
- Leads to greater protection of valued environmental assets while safeguarding against potential hazards and climate change impacts;
- Creates ownership of the planning process in order to ensure longer-term sustainability of Integrated SEA recommendations and outcomes;
- Provides a platform for inter-sectoral dialogue and builds trust to reduce potential conflicts over development projects;
- Turns the impetus of post-crisis situations into opportunities for more resilient and sustainable planning processes.

Above all, this Guidance Note is intended as a practical, step-by-step document, illustrated with lessons learned on applying Post-Conflict Integrated SEAs in Sri Lanka, Nepal and Côte d'Ivoire. For more information and to access the country-specific reports, see: www.unenvironment.org/drr

A list of contributors is available in Annex 1.

2. What is Post-Crisis Integrated SEA?

Table 1 gives an overview of the differences between Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments (SEAs) with additional components proposed by Post-Crisis Integrated SEAs. EIA became standard practice and legislated in the 1970s-1980s in many countries around the world. It is commonly undertaken by individuals or companies to assess potential environmental or social consequences, positive or negative, caused by proposed projects. EIA is usually the responsibility of the project developer or proponent. Depending on the type of project and environmental sensitivities, detailed environmental studies or mitigation measures may be required. While EIA has a proven track record and can also be applied to large-scale regional projects, generating 'Mega-EIAs', SEA is applied "to help formulate policies, plans and programs and to assess their potential development effectiveness and sustainability" (OECD, 2006: p.18).

Table 1. Overview of main objectives and approaches proposed by EIA, SEA and Post-Crisis Integrated SEA.

EIA	SEA	Post-Crisis Integrated SEA
Applied for specific projects	Applied for strategic decisions such as policies, plans and programs	Applied for strategic decisions in a post-crisis context
Aims to do things right	Aims to do the right things	Aims to prevent conflicts and disasters, and build resilience
Mostly a technical instrument	Mostly a political instrument	Mostly a political instrument
Identifies specific environmental and social impacts	Addresses issues of sustainable development	Special attention to disaster risk reduction and climate change adaptation
Limited review of cumulative effects	Early warning of cumulative effects	Cumulative effects of multiple reconstruction projects
Emphasis on mitigating and minimizing impacts	Emphasis on preventing impacts	Emphasis on preventing new disasters and conflicts
Linear and stepwise process	Flexible and iterative process	Flexible and iterative process

Credit: R. Verheem, Netherlands Commission for Environmental Assessment (NCEA) and Karen Sudmeier-Rieux, UN Environment

SEA evolved during the 1990s, using a family of approaches, with a variety of tools, rather than a single, fixed and prescriptive approach (OECD, 2006). A good SEA is adapted and tailor-made to the context in which it is applied, following the International Association of Impact Assessment (IAIA) Performance Criteria established in 2002 (IAIA, 2002). This can be thought of as a continuum of increasing integration. At one end of the continuum, the principle aim is to integrate environmental factors, alongside economic and social concerns, into strategic decision-making. At the other end, the emphasis is on the full integration of the environmental, social, economic, disaster risk and climate projection factors into a holistic sustainability assessment. In principle, disaster risk and climate change adaptation should be part of standard SEAs. However, in practice, they are often

not part of the process, hence the emphasis on disaster and climate risk in Post-Crisis Integrated SEAs. Finally, although [Table 1](#) specifies Post-Crisis Integrated SEAs, many of the features can equally be applied to non-crisis Integrated SEAs. In this case, the main difference would be the application of a rapid screening tool for potential reconstruction projects at the outset of the planning process, which is particular to post-crisis situations.

From SEA to more integrated approaches

A literature review of current SEA practices and legislation in developing countries demonstrates that there has been a rapid increase in the number of SEAs undertaken since 2004, for example in Africa (Tshibangu and Montaño, 2015). However, there seems to be insufficient implementation of SEAs and integration of SEA recommendations into land-use planning processes, whether or not a legislative framework exists. This is primarily due to lack of capacities and allocated resources within government structures, as well as limited enforcement mechanisms to implement and monitor SEAs.

[Table 2](#) illustrates several gaps in SEA practice, especially in countries where SEAs are more recent and capacities within governments to undertake them, are usually more limited. SEAs in post-crisis contexts should specifically consider these limitations – such as limited representativeness in the participatory process, or low monitoring of the SEA process – as they are particularly at risk of amplifying after a disaster or a conflict. In other words, these recommendations are specific for post-crisis contexts.



Road in Mustang District, Nepal, 2018. Credit: Karen Sudmeier-Rieux, UN Environment (2017)

Table 2. Limitations of SEAs and ways to address such limitations through Post-Crisis Integrated SEAs.

Limitations in current SEA practices, particularly in post-crisis settings	Suggestions to address limitations through Post-Crisis Integrated SEA
<p>Limited representativeness in the participation and involvement of the actors</p> <p>→ <i>In post-crisis settings:</i> Due to the urgency of reconstruction and the need to relaunch economic growth, participation and consultations can be perceived as obstacles to rapid recovery and development.</p>	<p>Ensure participatory process of relevant stakeholder entities (multi-sector) in Post-Crisis Integrated SEA. The approach has been demonstrated to save time in the long-term, as the process creates more ownership. Stakeholders are willing to contribute data, participate proactively and productively in dialogue and decisions. With this approach, SEA recommendations and decisions are more likely to be implemented and integrated into formal decision-making processes.</p>
<p>Very limited implementation of SEAs regardless of the existence of a legal framework</p> <p>→ <i>In post-crisis settings:</i> Low government capacity and effectiveness.</p>	<p>Ensure high-level buy-in for SEA / Integrated SEA as well as adequate resource allocation and capacity-building for government authorities who will be coordinating the process. Develop a monitoring and data collection framework to support implementation and tracking progress. Such a framework enables reorientation of the process, as needed.</p>
<p>Difficulty in acquiring information and data relevant to SEA and dissemination of SEA results</p> <p>→ <i>In post-crisis settings:</i> Fragmentation of institutions after conflict or disasters. In some cases, new baselines are required.</p>	<p>Ensure mandated government agencies involved in the SEAs are responsible for supporting the data collection process and create a data repository, which will also be available if another disaster or political crisis occurs. The participatory process creates a culture of ownership and data sharing amongst stakeholders. Encourage partners to acquire globally available data, such as satellite data or downscaled climate change projections to supplement primary or secondary data gathered locally (Annex 2: Additional Resources).</p>
<p>Disaster risk reduction and climate change adaptation often overlooked in SEAs</p> <p>→ <i>In post-crisis settings:</i> Increased vulnerability of stakeholders to environmental and disaster risks. Opportunity to involve stakeholders who were part of the conflict or impacted by disaster(s) for sustainable and resilient peacebuilding / recovery / rebuilding processes.</p>	<p>Systematically consider climate risks and disaster risks in the Post-Conflict Integrated SEA process. Pay attention to reconstruction, resettlement and re-building processes and mainstream disaster reduction and environmental sensitivities into the planning and development processes.</p>
<p>Low monitoring of the implementation of policies to ensure that the recommendations of the SEA are effectively considered</p> <p>→ <i>In post-crisis settings:</i> Low government capacity to provide adequate accountability in implementing SEAs and adopt effective monitoring and follow up processes. Sometimes post-crisis resettlement is politically driven and pressure to build back quickly takes precedence over SEA decisions.</p>	<p>Ensure adequate resources (human, equipment and training) and an enabling environment for multi-agency implementation and monitoring for compliance to Integrated SEA recommendations and decisions. Ensure that stakeholders have full ownership of the process through consultations, engaging with civil society organizations and communities who can also participate in the monitoring of SEA recommendations. Over time, mainstream outputs and recommendations of the Integrated SEA implementation into regular sector planning and development.</p>

Sources: Alshuwaikhat, 2005; Chaker, El-Fadl, Chamas et al, 2006; Dalal-Clayton, and Sadler, 2005; Kulsum, Mercier, and Verheem, 2005. (Credit: S. Yonkeu and L. Schreyers)

In the post-crisis period soon after conflicts or disasters, it is crucial to guide early stages of recovery and reconstruction so that new developments minimize environmental impacts and build resilience to disaster, climate, and conflict risks. Integrated SEAs build upon long-established and internationally accepted models and methods for predicting, assessing and discussing the likely environmental effects of change and development (OECD, 2006; OECD, 2010). Although there are many publications covering various aspects of SEAs, **few address the specific challenges related to post-crisis SEAs.** Verheem (2005), and OECD (2006, 2010a and 2010b) contribute useful guidance on conducting capacity development for SEAs in post-conflict situations and rightfully call for careful assessment and preparation of post-conflict SEAs. The OECD report on Strategic Environmental Assessment and Disaster Risk Reduction (OECD, 2010a), Dolcemascalo (2010) and Kelly (2013) list challenges in conducting a post-disaster SEA, including timing, chain of command, consensus on recovery goals and approaches. Kelly (2013) notes the lack of consultations with affected populations in the post-disaster period.

Post-Crisis Integrated SEA is an SEA undertaken in post-crisis settings, with particular emphasis placed on data integration and multi-stakeholder coordination in order to facilitate rapid resettlement and redevelopment. After a conflict or a disaster, especially in underdeveloped settings, where access and availability of data is limited, the need for informed decision-making is even more important. Just like SEA, Post-Crisis Integrated SEA identifies recommended steps to improve the environmental benefits of development, and avoid negative environmental effects and risks of conflict. Thus, Post-Crisis Integrated SEA is designed to begin with a rapid assessment of all potential reconstruction developments to ensure that they increase sustainable development and build resilience to disaster, climate, and conflict risks. Ideally, it is a nationally or regionally driven process involving all key stakeholders, including national and local governments, civil society, private sector and communities. **As such, Post-Crisis Integrated SEA can be considered a bridge between post-crisis humanitarian action and sustainable development planning.** See [Text box 1](#) on the Joint Initiative on the Coordination of Assessments for Environment in Humanitarian Action.

Text box 1. A Joint Initiative: The Coordination of Assessments for Environment in Humanitarian Action

The Joint Initiative is a collaborative effort to update key environmental assessment methodologies, enhance their online accessibility, strengthen the interconnectivity of available tools and pinpoint which ones are used at a particular stage of humanitarian programming or type of emergency.

In addition, the initiative will support efficient consideration of environment and climate knowledge in humanitarian assistance, through better dissemination of tools, resources and environmental data.

Key partners are the United States Agency for International Development (USAID), the United Nations High Commissioner for Refugees (UNHCR), World Wide Fund for Nature (WWF) and the Joint Unit of UN Environment / Office for the Coordination of Humanitarian Affairs (OCHA), known as the JEU.

For more information, see: www.eecentre.org/assessments/resources.html

Much of the methodology described in this Guidance Note covers the process of obtaining consensus from a wide range of actors to produce robust and consensus-based 'Opportunity Maps' to inform the decision-making process. This Guidance Note also recognizes concurrent interpretations of 'Integrated SEA', which often refer to integration between SEA recommendations and land-use planning. The interpretation of *Integrated* in this Guidance Note is similar, with additional emphasis on integrating stakeholders, data and sectors that could be affected by disaster risk and potential climate impacts on land-use and development planning, or '*risk-sensitive land-use planning*' (Burby et al., 1998; Sudmeier-Rieux et al., 2015).

Thus, Post-Crisis Integrated SEAs can be considered a more comprehensive approach than conventional SEAs as they may include additional data on hazards and conflict potential. The methodology is, therefore, compatible with the OECD (2006) recommendation to adapt the SEA definition to particular decision-making needs, “frequently SEA approaches are given different institution-specific labels such as sustainability appraisal, integrated assessment, etc.” (OECD, 2006: p.33). [Text box 2](#) outlines the key characteristics of Post-Crisis Integrated SEAs.

Text box 2. Characteristics of Post-Crisis Integrated SEA

- Facilitates assistance for rapid resettlement/redevelopment in contexts of low confidence towards institutions;
- Integrates sustainability and resilience in spatial planning of the ‘building back better’ process at an early reconstruction stage;
- Devises a fast-tracking methodology to rapidly assess development projects based on environmental sustainability criteria;
- Creates a multi-stakeholder coordination process with the multiple purpose of data sharing, joint analysis dialogue, trust-building and conflict resolution;
- Ensures that disaster risk reduction and climate change adaptation are embedded in the process regardless of whether the situation is post-crisis;
- Ensures that SEA recommendations are integrated into risk-sensitive development plans, land-use planning processes and environmental monitoring systems;
- Facilitates a process to address potential multi-sectoral land-use conflicts.

Outputs include:

- A process for inter-agency and stakeholder cooperation that facilitates more effective post-crisis redevelopment;
- A support tool for decision-making in a context of incomplete knowledge of environmental, administrative, or development issues;
- Collection and analysis of baseline data on environmental sensitivities/proposed development projects/disaster risks/climate change projections relevant to the spatial planning process;
- Production of an ‘Opportunity Map’ that distinguishes reconstruction and development projects that can rapidly move forward with low environmental impacts and high resilience and those that cannot. The ‘Opportunity Map’ is the basis for a comprehensive spatial planning strategy between stakeholders linked to formal decision-making processes.
- New partnerships can result from the stakeholder dialogue, as the process raises awareness between partners and may reveal potential synergies;
- A support tool for early decision-making about disaster risk reduction (DRR):
 - identification, characterisation and assessment of the location, extent and risk of the locations, and conditions that are likely to give rise to risk;
 - identification and development of measures to reduce the magnitude of areas, developments, activities or populations likely to be exposed to risk of disasters;
 - measures to prepare for the monitoring and learning from the application of these measures to improve the outcomes in other areas of similar vulnerability.

Benefits:

- Improved environmental protection and hazard mitigation;
- Improved inter-agency coordination and conflict resolution;
- Establishment of/improved data repository;
- Improved plans and policies for resettlement / reconstruction and sustainable development
- Increased capacities and preparedness in case of a new crisis;
- Climate resilience taken into account by addressing future weather patterns and expected effects of climate change (such as flooding risk due to sea-level rise and more intense rainfall events).



*Traditional fishing port with shipping port in background, San-Pédro, Côte d'Ivoire.
Credit: Karen Sudmeier-Rieux, UN Environment (2017)*

3. How to undertake Post-Crisis Integrated SEA

Post-Crisis Integrated SEA builds upon a gap analysis of SEA practice and internationally accepted models and methods for predicting and assessing the likely environmental effects of change and development. Methods used include the standardization of assessment and the dissemination of results. The methodology in this Guidance Note builds on guidance established by the OECD DAC task force on SEA in 2006 and the Guidance Note on Post-Conflict Integrated SEA in 2010. It builds on the OECD Basic Stages in SEA (OECD, 2010: 54) and proposes more detailed tasks for post-crisis countries, in particular:

- A **rapid screening of possible development projects** using strategic indicators to ensure that basic environmental objectives are upheld, which is especially useful in very urgent situations with few available data;
- A **consultative participatory mapping process** to identify 'Opportunity Areas', i.e. places where there is inter-agency consensus and consensus with local communities/ NGOs about the lack of significant detrimental impacts to the environment or increased risk of conflicts or hazards due to proposed reconstruction projects.

Text box 3 shows the preparatory steps for a Post-Crisis Integrated SEA:

Text box 3. Post-Crisis Integrated SEA - Preparation steps

- Determine whether a Post-Crisis Integrated SEA has sufficient government support or the potential to create capacities for uptake and ownership of Post-Crisis Integrated SEA recommendations;
- Determine whether the SEA components (i.e., proposed development projects) are likely to have negative impacts on the environment and the sensitivity and vulnerability of the host environment according to proposed projects;
- Determine whether other institutions (or donors) have carried out, or intend to carry out, SEA, and which other rapid assessments have already been undertaken, including Post-Disaster Needs Assessment / Post-Conflict Needs Assessment, and Rapid Environmental Assessments, that can provide useful input data. (See Annex 2: Additional Resources);
- Set up a management team/steering committee and appoint a coordinator with sufficient authority to ensure uptake of the process. Establish the terms of reference. Clarify and confirm specific goals and objectives;
- Develop a capacity-building and communications plan for the SEA;
- Confirm sources of funding;
- Announce the start of the planning process and set definite and realistic timescales.

Important to Note:

- Ensure the development priorities of the country or region are fully taken into account;
- Ensure SEA recommendations are integrated with existing planning and assessment systems in the partner country and develop links with other impact assessment approaches in use.
- Adapted from OECD (2006: p. 55)

STAGE 1 – ESTABLISH THE CONTEXT

(Timeline: 0-3 months post-crisis)

Figure 1 illustrates stages for SEA, tasks of each SEA stage and additional tasks specific to Post-Crisis Integrated SEA. These will be described in greater detail in the following sections, with examples from the three case study countries, which are described in detail in Section 2.

Figure 1. Comparative graph between SEA stages, SEA tasks and tasks specific to Post-Crisis Integrated SEA

	SEA stages	SEA tasks	Tasks specific to Post-Crisis Integrated SEA
1	Prepare: Establish the context for the SEA	Screening Setting objectives Identifying stakeholders	Rapid screening: identifying reconstruction projects for 'building back better' Identify stakeholders for trust-building and conflict-resolution
	↓	↓	↓
2	Implement the SEA	Scoping (dialogue with stakeholder) Collecting baseline data Identifying development alternatives Enhance opportunities and mitigate impacts Quality assurance	Participatory data collection and mapping Opportunity mapping: integrate development + environmental sensitivities + hazards = 'Opportunity Maps' for sustainable reconstruction and development Identify development scenarios and mitigation options
	↓	↓	↓
3	Inform and influence decision-making	Formulate recommendations and influence decision-making through dialogue with stakeholders	Inform and influence with special attention to conflict and disaster prevention
	↓	↓	↓
4	Monitor and evaluate	Monitor decisions Monitor implementation Evaluate SEA and decisions	Multi-stakeholder monitoring and evaluation Revise 'Opportunity Maps' as needed

Credit: R. Verheem, NCEA and K. Sudmeier-Rieux, UN Environment

Rapid screening

In post-crisis situations, time is of essence. Although relatively simple, rapid screening is intended to give decision-makers a **rapid overview** of which reconstruction and development projects can proceed without major environmental concerns, which projects are likely to have environmental impacts (e.g., loss of biodiversity) or are likely to either create, aggravate or be affected by hazard impacts or conflicts, and which projects should be subject to EIAs. For example, will the reconstruction project create erosion which may undermine the reconstruction project? Is the project situated in a floodplain? This step could be undertaken within the first three months after the crisis to give a quick overview of potential environmental and hazard-related issues.

- I. Identify any existing rapid assessments such as Post-Disaster Needs Assessments, Post-Conflict Needs Assessments, or Rapid Environmental Assessments that may provide useful information and data. In Nepal, for example, the Post Disaster Recovery Framework (2016) listed all priority projects which were used as a basis for the Integrated SEA;
- II. Identify proposed reconstruction/ development projects by sector, or areas that are environmentally or conflict sensitive. Prioritize these if possible;
- III. Identify Environment and Hazard Indicators (EHI) to assess priority reconstruction/ development projects or areas (such as biodiversity hotspots) that may be environmentally or hazard sensitive. The indicators should lead to targets in the monitoring and evaluation plan. For examples of indicators, see Annex 3.
- IV. Convene key experts (for example, EIA experts or government officials from Ministries of Environment, Construction, Planning and Disaster Management) to assess the reconstruction/ development projects against the EHIs;
- V. Establish an analysis grid with reconstruction/ development projects and the EHIs (see example in Figure 2). For each project, assess the potential impact:

- Likely to improve EHIs
- Potential conflict with status of EHIs – mitigation plan may be needed
- Probably conflict with EHIs – mitigation plan will be needed
- No likely interactions with EHIs

Figure 2. Example of a rapid assessment grid using Environmental and Hazard Indicators

Reconstruction Projects / Development Projects	Environmental and Hazard Indicators			
	Flooding	Coastal erosion	Deforestation	Water pollution
Residential area	■	■	■	■
Sewer system	■	■	■	■
Bus station	■	■	■	■
Road network	■	■	■	■
Waste water treatment plan	■	■	■	■

Source: *Environmental and Hazard Indicators*, adapted from the Côte d'Ivoire case study in San-Pédro UN Environment (2017a)

The steps described above provide a quick screening process to initiate the Post-Crisis Integrated SEA. They may be undertaken with little time to identify and consult with a broad range of stakeholders, however, it is also possible to base these steps on quick expert feedback instead. The following scoping phase must therefore include key stakeholder groups in order to ensure a more sustainable process and outcomes. At this point, the assessment takes the form of a broader multi-sector analysis that identifies and articulates the key challenges to rapidly accommodate development in environmentally responsible and hazard/conflict-sensitive ways. Key institutions play leading roles by bringing planners, implementers and users together from the inception, thereby providing an opportunity for emerging development plans to be sound, sustainable and acceptable to all stakeholders.

Identify stakeholders for trust-building and conflict-resolution

- I. Identify key stakeholder groups, which should include key government agencies, at least from environment, planning and disaster management, but also technical ministries (i.e., Construction, Archaeology, Population, Agriculture), as well as academia, CSOs, NGOs, EIA/SEA professionals, private sector, etc.
- II. Establish working committees and steering committees with terms of references and clearly defined mandates. In case of situations with potentially heightened environmental or political sensitivities, committees may need to be managed by a neutral agency or a consultant with skills in conflict resolution.
- III. Validate key issues highlighted by the rapid screening process. If the Rapid Environmental Assessment has already been conducted, the EHIs can be presented to stakeholders and further developed. The EHIs should, in fact, reflect key issues.

Text box 4. Case study example from post-earthquake Nepal

The post-crisis SEA process began with a number of discussions about the framing of the exercise and its geographical scope. First, each Post-Disaster Recovery Framework (PDRF) (the official framework documenting damaged infrastructure requiring reconstruction) activity was screened by EIA government experts, considering detailed environmental rules and requirements. This expert group found that 77 - 84% of the PDRF work plan activities could proceed with no significant effect on environment; 14 - 16% would require EIAs; and 1 - 8% needed more data for screening. The exercise provided a general framing of the issue, which led to a decision to limit this capacity-building exercise to the transportation sector and specifically to roads for reconstruction as listed in the PDRF.

STAGE 2 – IMPLEMENT

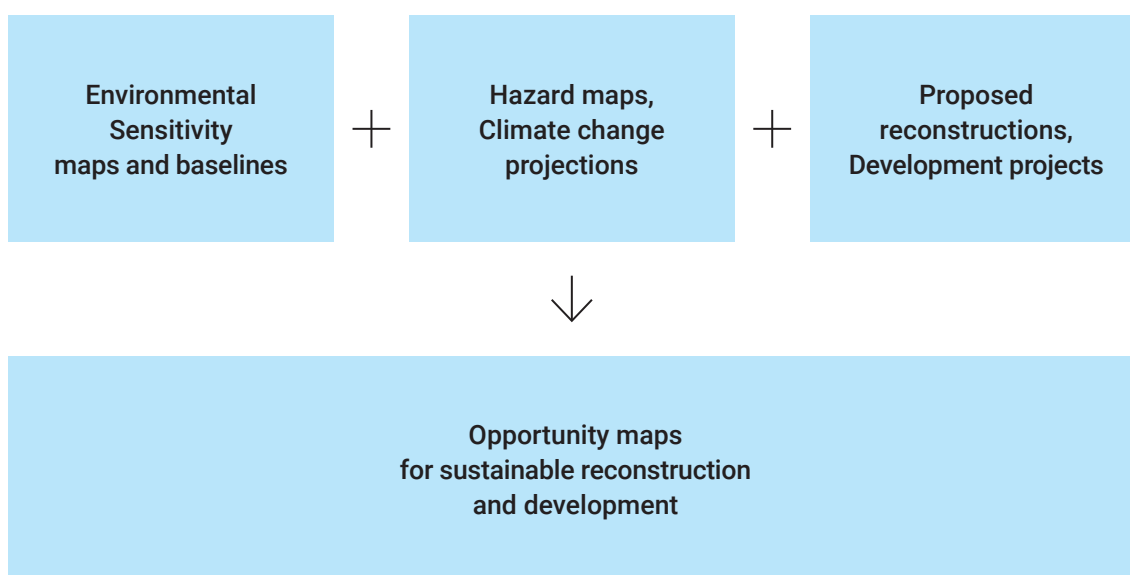
(Timeline: 1-12 months post-crisis)

Collect data / Conduct participatory Opportunity Mapping which integrates disaster risk reduction and climate change adaptation

This stage comprises participatory data collection and mapping of three main types of data which provide the basis for Integrated SEAs (Figure 3). The time required to complete this process will depend on the availability of data and can vary considerably (between a few months and one year). It is important to note that the information required to perform this type of high-level evaluation is usually dispersed across a wide range of agencies and bodies, which may not have an established tradition of cooperation. Indeed, it is not uncommon to encounter un-cooperative relationships between agencies who regard each other's endeavors as being disruptive to them. For this reason, Integrated SEAs include a survey of all of those who are likely to need to cooperate to ensure that the full scope of likely development can be identified and assessed. It also means that all agencies who are likely to hold relevant environmental, hazard or conflict information will also need to be identified and approached.

For this reason, the data collection should be backed-up by ongoing consultative sessions with stakeholders. Stakeholders should participate actively during the data gathering and, when possible, in the data analysis and management. Data collection can be the most time-consuming activity of the Integrated SEA. Therefore, data collection should, whenever possible, be based on available secondary data and be undertaken to correspond to minimum requirements to inform the Integrated SEA process. Primary data collection can be very costly and should be carefully considered. However, in Sri Lanka a multi-agency primary data collection process was undertaken for the Northern Province over a 12-month period with great success, creating an institutional framework to protect environmentally sensitive areas.

Figure 3. Post-Crisis Integrated SEA participatory data and mapping steps



Environmental sensitivity maps

In addition to mapping environmental resources, it is necessary to prepare concise and easily understood descriptions of how key environmental resources interact with each other. Typical examples include the presence of specific natural resources, or of protected areas.

Hazard maps, conflict maps and climate change projections

Environmental descriptions are often limited to typical conditions. However, occasional or extreme events, such as floods, storms, earthquakes or landslides, can be a limiting factor for the development or use of a territory. It is critical that data on hazards and disaster risks, as well as hazard maps, are included in the Integrated SEA and that they are used to 'test' emerging alternatives under a range of scenarios. Annex 2 provides information on where to find data on hazards and climate change projections.

Proposed Development maps

Reconstruction and development plans need to be mapped, in order to assess the potential cumulative impacts on the environment, as well as potential land-use conflicts. In the aftermath of disasters and conflicts, it is also common for various development projects to be carried out without consultations between them. In this context, an overview of the overall development strategy is required.

For all of the above maps, data should be transformed to a Geographic Information System (GIS) database. If government agencies do not have access to GIS expertise, it may be possible to establish partnerships with specialized agencies or academia. Open source GIS software and online training courses (such as for QGIS) can be considered. In areas with few data, remote sensing data (i.e., satellite data) may be freely available but require expertise to transfer into a GIS database. See Annex 2. Additional resources for websites on global environmental and hazard data.

Finally, it is important to identify and understand the processes through which these actors interact and what steps are likely to be required for them to come together and work quickly and effectively to facilitate an Integrated SEA. **Ultimately, the data collection and mapping process should respond to the following questions:**

- Which areas present opportunities for development?
- Which areas need to be protected?
- Which reconstruction/development projects require special mitigation measures?

Are there any potential land-use conflicts between:

- Areas designated for development and areas for conservation?
- Areas designated for development, which may aggravate hazards, conflicts, or which may be impacted by hazard events and
- Areas claimed by different stakeholders?

Expected outcomes from the data collection and mapping process include:

- A higher scale evaluation of the potential adverse impacts of proposed programs, plans and major projects;
- An introduction to disaster risk reduction and environmental conservation measures from the start of new programs, plans and major projects;
- A platform to engage multi-sector development partners and
- A system to monitor ecosystem changes due to expected development.

Text box 5. Tips on data sharing and collection

Data Sharing

Post-Crisis Integrated SEAs can induce positive changes in the way in which agencies interact with each other during the preparation of projects, plans and policies. This can improve both the quality of data and integration, as well as the outcome of associated plan and policy formulation. It is therefore important that technical agencies are willing to provide their data to the Integrated SEA process, for the benefit of all.

Data Prioritizing

In addition to the supply and sharing of data, there usually needs to be improvements in the interpretation of specialised environmental data. This takes the form of reducing the complexity and omitting unnecessary information to produce standardized 'environmental sensitivity maps' for each topic, which arrange data according to their relative significance or priority (i.e., most to least significant).

Data Integration

In order to facilitate easier use by decision-makers and assist in the identification of potential impact areas as well as gaps in data, shared data needs to be compiled into an integrated data set, hosted by a trusted coordinating agency so that all information appears on the same base mapping. This is a very significant stage because it facilitates the combination of authoritative data from many sources as 'layers' which, when combined, highlight areas where environmental, hazard or conflict sensitivities are either scarce or spatially concentrated. This, in turn, allows the identification of opportunity areas as well as 'hot spots'.

Data Gap identification

The combination of data sets and the use of such data for impact identification, also reveals gaps in the existing data that may need to be filled, preferably with secondary data. These can be spatial gaps, for example where there is incomplete coverage, or gaps in certain types of data. However, in a post-crisis situation, time is often of the essence and data collection may need to be streamlined.

Text box 6. Based on three case studies, mitigation options may include:

- Identification of sites to sustainably extract sand and building materials;
- Identification and condition assessment of sensitive habitats and cultural areas (especially those with likely commercial value such as forestry or tourism);
- Reducing potential environmental degradation, such as erosion, which may increase likelihood of landslides or flooding through re-greening, or appropriate engineering structures;
 - Relocating a development project from a hazard zone, such as a floodplain or an area with high coastal erosion, or where it could create conflict between stakeholders;
 - Reflecting climate-proofing in parameters for engineering design and equipment standards.

Identify development scenarios and mitigation options

Once the data collection and mapping processes have been undertaken and potentially undergone (multiple) rounds of consultations to validate results, depending on the urgency of the situation, the next step is to identify development scenarios and mitigation options.

- I. Develop scenarios based on the original Environment and Hazard Indicators (or adapted EHIs, based on stakeholder consultations). Three scenarios should be considered:
 - **Business as Usual** (i.e., What is the scenario if all potential projects are implemented without mitigation measures?). The purpose of developing this scenario is for stakeholders to visualize the current situation with the inherent risks of no action.
 - **Conservation** (i.e., What is the scenario if all proposed projects are implemented with environmental conservation strategies in place?)
 - **Planned development with mitigation plans** (i.e., What is the scenario if all proposed projects are implemented with mitigation and conservation plans?)
- II. Develop an analysis grid with priority development projects against EHIs for each of the three scenarios. **Consult with key stakeholders to reach consensus** on the preferred development scenarios, considering which mitigation options are needed and realistic. Consider how to promote multiple benefits, or multi-functionality of potential projects (e.g., building schools that can function as emergency shelters, or hybrid protective barriers against sea level risk and storm surges, which also provide livelihood benefits).
- III. Categorize potential impacts according to:
 1. **High Impacts**
 2. **Moderate Impacts**
 3. **Low Impacts**
- IV. Prepare a description of impacts:
 - Prepare standardized descriptions of the likely effects of each major element of the preferred / best / likely option that will occur;
 - Describe the scope for mitigation to occur;
 - Describe conditions / changes / limitations that are likely to be required to avoid impacts or reduce them to a level that is likely to be acceptable.

STAGE 3 – INFORM AND INFLUENCE DECISION-MAKING

(Timeline: Throughout the process)

The objective of this stage is to draft recommendations, a briefing note or a request to formalize the process to ensure that the SEA is **integrated into formal development plans, land-use plans or a formal SEA process**. This is inherent in any SEA and it is equally the case for any post-crisis SEA.

Text box 7. Influencing decision-making: a topic in both SEA and Post-Crisis Integrated SEA

Formalization (or institutionalization) can take various formats and is a critical point for an Integrated SEA in terms of its uptake and sustainability once the process has ended. In Sri Lanka, which did not have SEA legislation during the project period, certain recommendations of the Integrated SEA were still formalized. In particular, the recommendation to protect critical wildlife habitat was formalized through the declaration (gazetting) of several Protected Areas by respective sector agencies, such as the Department of Wildlife Conservation.

Subsequently, the World Bank incorporated integrated SEA methodology for SEAs in other regional developments such as Western Province Megapolis. In Nepal, a number of municipalities under the new federal government system are in the process of adopting the Integrated SEA methodology in their Master Development Planning Process. Finally, in Côte d'Ivoire, the Post-Crisis Integrated SEA process was the first time the country's SEA legislation had been applied in practice, and was in the process of formalization as this document went to press.

The Post-Crisis Integrated SEA experience suggests that influencing decision-makers should not wait until Stage 3. Rather, if the process is well-designed, influential decision-makers will already be part of the consultative SEA process from the start. This is the same in 'regular' SEA, but in practice does not always take place sufficiently.

Equally crucial is that the Post-Crisis Integrated SEA process be linked to formal decision-planning processes, such as development planning and risk-sensitive land-use planning, as presented in Stage 2. It is essential that these plans, programs or policies take into account Post-Crisis Integrated SEA outcomes (i.e., recommendations, data, maps and the mitigation plan). Again, this is the same as for SEAs.



Participants during stakeholder consultations in San-Pédro, Côte d'Ivoire, 2017.
Credit: Louise Schreyers, UN Environment (2017)

STAGE 4 – MONITOR AND EVALUATE

(Timeline: Usually at the end but needs to be considered from the beginning)

Establish multi-stakeholder monitoring and evaluation

In order to ensure sustainable uptake of Integrated SEA recommendations, it is important to establish a multi-stakeholder monitoring and evaluation plan. The objective is to track the extent to which the environmental, hazard and conflict-related objectives are being met. This should be implemented by a government agency with the mandate and authority to conduct follow-up and ensure that Integrated SEA recommendations are monitored and applied. Monitoring of compliance can be undertaken either 'bottom-up', in collaboration with CSOs and communities or 'top-down', using remote-sensing data, potentially in collaboration with specialized agencies.

Text box 8. Case study example: Application of SEA Decree 2013-41 (2013) in Côte d'Ivoire

In Côte d'Ivoire, the Integrated SEA process for San-Pédro was the first time that SEA Decree 2014-41 had been applied. As this document went to press, the SEA was being formalized through an official request to the Ministry of Environment. This entails a full SEA process, with detailed baseline data, identification of development alternatives, validation of results, formulation of recommendations and a decision on development alternatives through stakeholder consultations. The San-Pédro capacity-building exercise undertaken with UN Environment support in 2016/2017 corresponded to the initial phases of a full SEA process. It brought together a broad range of stakeholders from the government, the private sector, academia and civil society organizations for the first time. The Government is revising its decree on Integrated SEA to be included in the revised Environment Law.

Revise and adjust

Ideally, the Post-Crisis Integrated SEA process has established feedback mechanisms, which allow the management team to reassess findings, and consider whether further data collection, new maps, or adjustments to maps are required. One of the key indicators of a successful Integrated SEA will be if the process of Strategic Environmental Assessment becomes part of conventional plan-making in the area. This will generally involve the orderly and systematic transfer of responsibilities for environmental assessment horizontally to relevant agencies and vertically, in accordance with the principle of subsidiarity.

This section on methodological guidance provided several practical tips on how to conduct a full Post-Crisis Integrated SEA in potentially difficult post-crisis contexts. The following section details three case studies from Sri Lanka, Nepal and Côte d'Ivoire where these methodological steps were undertaken to various degrees and in alternative formats. They demonstrate that the described Integrated SEA methodology should be tailored to different contexts, timeframes and needs.

4. Case studies: Post-Crisis Integrated SEA in Sri Lanka, Nepal and Côte d'Ivoire

The post-crisis SEA approach was implemented in three developing countries, namely Sri Lanka, Nepal and Côte d'Ivoire, for different but complementary reasons. Sri Lanka was the first country where a comprehensive and full post-conflict Integrated SEA was designed, carried out and implemented. In Nepal and Côte d'Ivoire, only components of Post-Crisis Integrated SEA applications were possible due to resource and time constraints. In Sri Lanka, this was possible due to two projects. The first project focused on the Post-Crisis Integrated SEA process (2009-2012), funded by the Bureau of Crisis Prevention and Recovery (BCPR), UNDP, with technical support from UN Environment. The second project (2016-2017) focused on documenting “lessons learned” and capacity building, funded by the UN Development Account.

The following section describes the Post-crisis Integrated SEA process in each case study country and illustrates how the countries tailored the process to their specific contexts. This section is followed by a summary of lessons learned from undertaking SEAs in post-crisis settings.



San-Pédro Port Authority, Côte d'Ivoire. Credit: Louise Schreyers, UN Environment (2017)

SRI LANKA

In 2009, shortly after the end of a 33-year civil war, the Government of Sri Lanka was committed to the resettlement of about 350,000 internally displaced people, and sustainable reconstruction and recovery of the Northern Province, also severely impacted by the 2004 Indian Ocean Tsunami. Along with the urgency of reconstruction, including resettlement of displaced populations, it was recognized that reconstruction and new development should not cause negative environmental impacts or jeopardize the long-term sustainability of development and disaster resilience of the Northern Province. Moreover, new development offered an opportunity to incorporate nature-based solutions and disaster resilience considerations in the planning to 'build back better'. As in many instances, at the end of a humanitarian phase of a conflict/disaster, funding was not a major constraint. There was a timely opportunity to add value to the recovery process through medium to long-term sustainable thinking, coordination support and by providing appropriate technical assistance.

In that context, UNDP Sri Lanka, the Central Environment Authority and Disaster Management Centre joined forces to welcome and use technical and financial support of UNDP and UN Environment to develop a framework for the sustainable and resilient reconstruction of the Northern Province. This early entry approach was named the "Integrated Strategic Environment Assessment for the Northern Province of Sri Lanka (Integrated SEA-North)." The Integrated SEA-North started in 2009 and was completed in 2012, while the final report was released in 2014 (Mallawantantri et al., 2014). However, the information-sharing and agency dialogue continued intensively after 2010. Relevant agencies adopted the data when they became available so as not to hinder the rapid development, while strengthening the respective sector agency functions as part of the integration process.

During this process, a high level of coordination with all stakeholders involved in planning and development was needed to address land use and institutional conflicts that emerged while the reconstruction framework was developed. Overall, over 40 agencies worked side-by-side during the Integrated SEA-North process, forming the basis for a consultative and participatory approach that brought together conservation agencies, development authorities as well as policy-level institutions. For example, key conflicts included, but were not limited to:

- Which forest and wildlife lands should be released for economic, urban and residential/resettlement purposes;
- Where to source building materials (sand, gravel, water etc.) to fast track reconstruction;
- How to avoid mining and construction in archaeological sites;
- Methods to avoid settling people in flood plains, known cyclone tracks, or wildlife corridors;
- Provision of water to new towns, industries and other economic activities;
- Ways to map out new roads, transmission lines, irrigation diversions in a way that would not affect biodiversity or raise other disaster concerns.

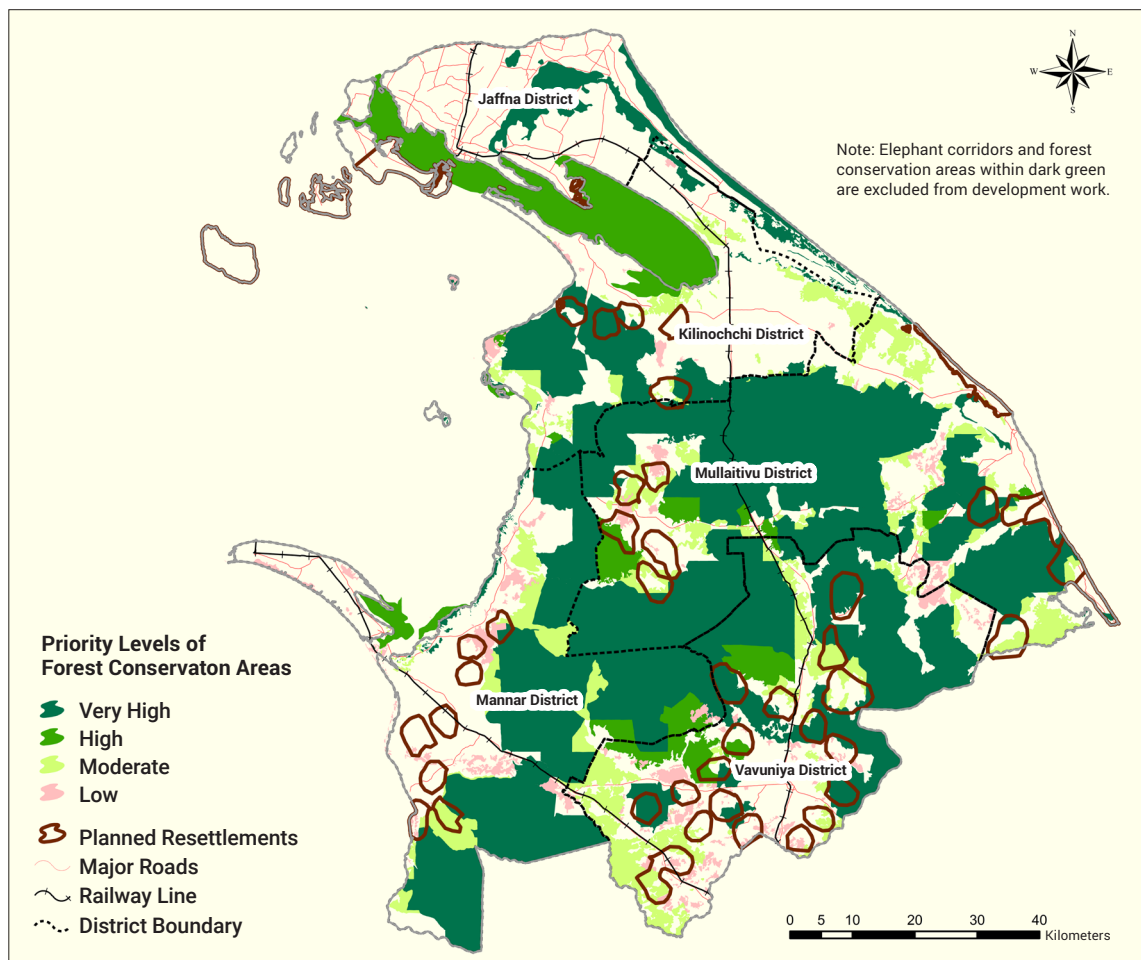
These potential land use conflicts justified a multi-sector and multi-stakeholder approach and the need for rapid decision-making in the context of post-conflict reconstruction demands. To this end, the project introduced a technically sound, transparent and participatory process, notably through data collection and analysis.

Following the 33-year conflict, data availability in the Northern Province was considered inadequate for sound planning and decision-making. Therefore, as the first step of the Integrated SEA process, agencies identified the potential land use conflict issues and data needs to address identified issues. This was followed by the development of Strategic Environmental Indicators, such as water supply, water quality, biodiversity, etc. The Integrated SEA process then involved data integration, data gap filling and stakeholder coordination, to systematically consolidate and compile baseline data and development information.

Baseline information included environmental data on sensitive forests, wildlife areas, water quantity and quality, marine and coastal resources, cultural sites. Data on settlements, disaster-prone areas, related to resilience, were also included, as well as development data such as proposed infrastructure plans, urban and resettlement plans and economic activities proposed. The overlaying of the proposed development agenda on the baseline maps facilitated the stakeholder dialogue and highlighted several potential land use conflicts. At the same time, a range of proposed development activities could be agreed on for immediate implementation, as they did not affect either sustainability or resilience.

The Post-Crisis Integrated SEA process allowed agencies to discuss their mandates and requirements in the short, medium and long term. For example, urban development, industries, mining and minerals, roads and transmission sectors required additional lands. The land requirement needed to be provided primarily by the Forest Department and this department went through a land prioritization process to determine high conservation value forest areas and areas that could be released for development and resettlement (Figure 4).

Figure 4. Map of planned resettlements and priority areas for forest protection in Northern Province, Sri Lanka.



Source: Urban Development Authority, Forest Department, 2012. In: IUCN (2017)

This prioritization of forest and wildlife lands allowed wildlife corridors to remain intact and ensured that minerals would not be exploited within high value forest areas. Road designs, urban and resettlement plans were also modified to suit the Forest Department land prioritization. The mining versus forest resources conflict resolution process was cordial, technical, transparent and meaningful, highlighting the value of the integrated information led process. The Map Compendium of the Integrated SEA-North includes the primary data layers and the overlaid information used to support land use related decision making.

Disaster resilience was introduced using the National Hazard Profile, which was in the process of being finalized at the time of the Integrated SEA. Hazard information combined with proposed development and resettlement plans are the cyclones, sea level rise predictions based on the projections of the Intergovernmental Panel on Climate Change (IPCC), and flood information. The proposed development-related information and hazard profile information (Figure 5) helped the participating agencies to better understand the potential disaster impacts on development and settlements.

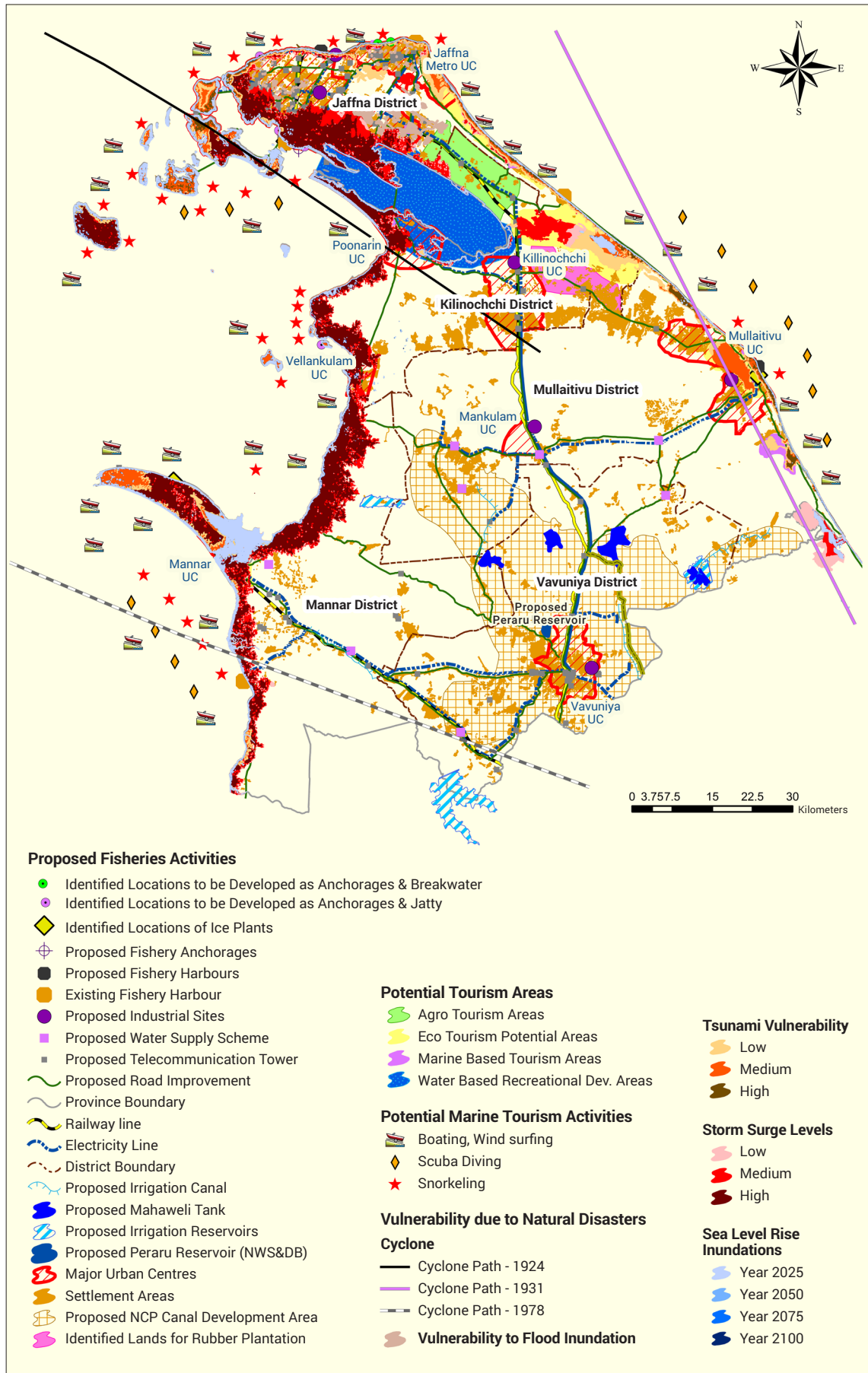
One of the immediate needs was to delineate the areas that could be developed without constraints. Such a delineation was expected to support the EIA process of projects. The areas with fewer constraints were isolated and mapped by an 'Opportunity Map'. These constraints were considered in terms of not having: very highly prioritized wildlife areas, very highly prioritized forest areas, mineral sites, surface water bodies, or archaeological sites. Hence the Opportunity Map (Figure 6) guided the process of 'building back better' and future developments by providing a means to avoid areas with ecological sensitivities or resilience concerns. Furthermore, it was an easily understood and handy reference for policymakers and investors. The brown areas in Figure 6 are the areas to which reconstruction projects, development and investments were directed.

As the Opportunity Map identified areas for development, based on more environmentally-sustainable and risk informed decision-making, the map continues to support approval of environment-related decisions, such as EIAs. Development scenarios were then formulated to provide a quick analysis on environmental impacts of different project under different management strategies (including 'Business-as-usual' and conservation management). These scenarios offered a systematic overview of likely effects of development ideas, thus enabling decision-makers to take informed decisions when formulating development plans, eventually modifying them to consider negative environment impacts.

The success of the Integrated SEA-North resides in its contribution to strategic decision-making and development planning. Key outcomes included:

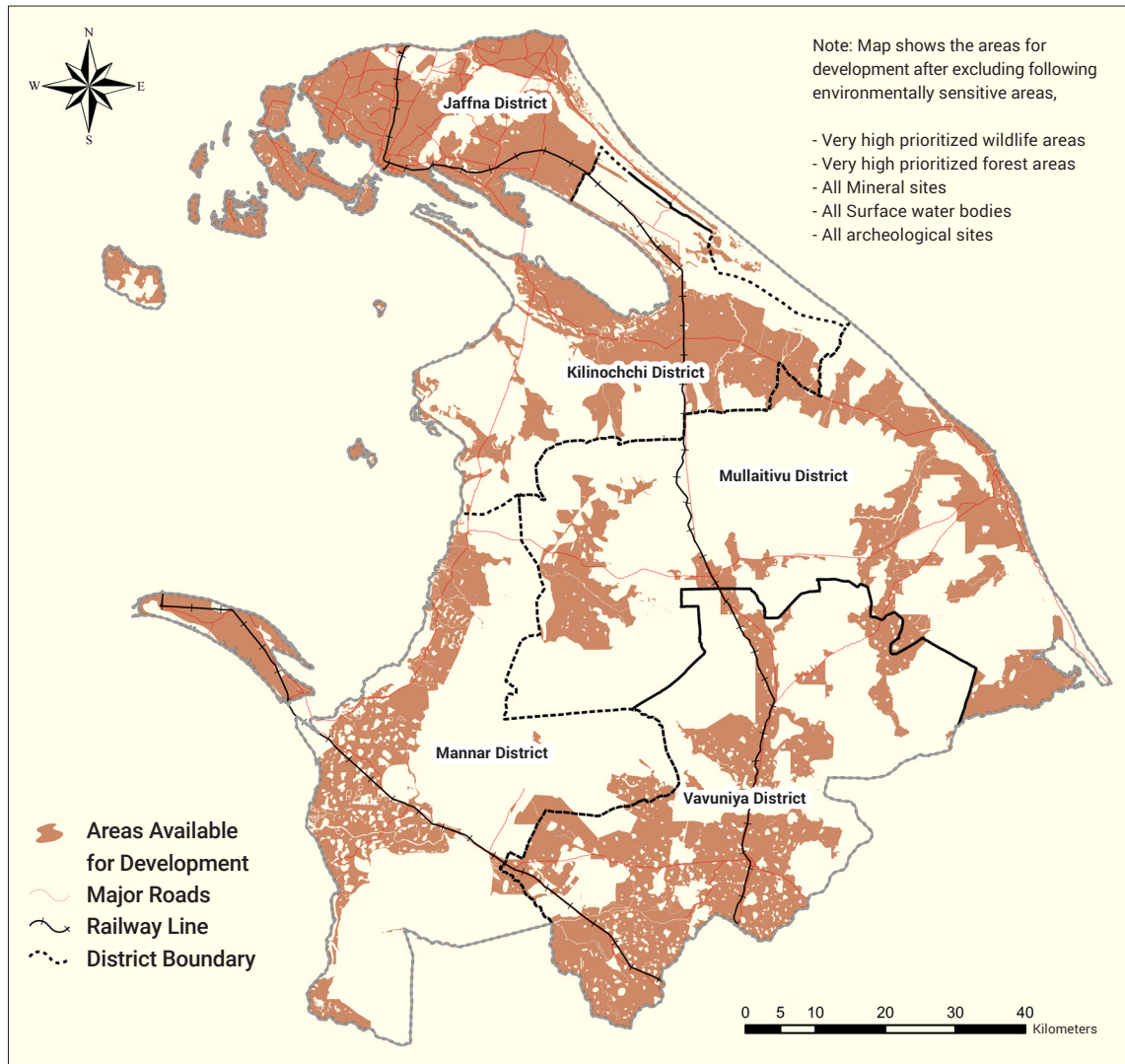
- a) Forest Department declared fragile areas as Forest Reserves;
- b) Department of Wildlife Conservation declared new wildlife and marine sanctuaries;
- c) Department of Archaeology declared 200 new sites and UDA developed the "Heritage Tourism Development Plan for Delft Island";
- d) Northern Province Physical Structure Plan was developed in 2013 by the Urban Development Authority, including plans for Kilinochchi, Mullaitivu, Mannar, Vavuniya, Vellankulam and Jaffna cities;
- e) Asian Development Bank used the data to plan the North Central Province water diversion to North Province;
- f) Demarcation of tourism and new road development plans;
- g) World Bank Strategic Cities Development recommended the Integrated SEA approach as a general planning tool.

Figure 5. Map of Disaster potential (including climate change) on development projects



Source: Urban Development Authority, Mahaweli Authority, Disaster Management Centre, National Aquatic Resources Research and Development Agency. In: IUCN (2017)

Figure 6. Opportunity Map for areas available to reconstruction, Northern Province, Sri Lanka



Source: Urban Development Authority, 2012. In: IUCN (2017)

Although the Integrated SEA-North process was **not declared** as a legal instrument, **the line agencies involved in the Integrated SEA process had adequate legal power to implement the recommendations.** It was thus a sound alternative to the lack of SEA legislation. The success of the Integrated SEA-North was reflected in the national agenda and the same approach, including the use of Strategic Environment Indicators, was adopted to develop the SEA for the Western Region Megapolis Planning Process. This process is the largest planned economic, social and infrastructure investment by the Government between 2017 and 2025.

A detailed lessons learned report (IUCN and UN Environment, 2017) highlighted that the Integrated SEA approach adopted in post-conflict Sri Lanka was proved to be replicable in post-crisis sustainable and resilient development.

NEPAL

UN Environment conducted a capacity-building project in Nepal (2016-2018) following the devastating Gorkha earthquake in April 2015 to promote the Integrated SEA process for planning sustainable reconstruction. It was undertaken in collaboration with the Ministry of Population and Environment (MOPE; now the Ministry of Forests and Environment) and the National Reconstruction Authority (NRA), which was established in 2016 to oversee post-earthquake recovery and reconstruction.

Due to time and budget constraints, the project focused on the 14 most earthquake-affected districts, based on recommendations from the Post-Disaster Recovery Framework (PDRF). The process began with a number of discussions about the framing of the Integrated SEA exercise and its geographical scope. First, each PDRF (the official framework documenting damaged infrastructure requiring reconstruction) activity was screened by EIA environmental experts from sectoral government Ministries, considering detailed environmental rules and requirements. This expert group found that 77 - 84% of the PDRF work plan activities could proceed with no significant effect on environment. Of the remaining activities, 14 - 16% would require EIAs and 1 - 8% needed more data for screening (Table 3). This exercise provided a general framing of the issue, which led to a decision to limit this capacity-building exercise to the transportation sector and specifically to roads for reconstruction as listed in the PDRF. The team decided to start the pilot work in one district, Sindhupalchok, one of the most affected, before applying the methodology to the 14 most earthquake-affected districts.



Post-earthquake Kathmandu, Nepal, 2016. Credit: Purna Chandra Lal Rajbhandari, UN Environment (2016)

Table 3. Rapid environmental screening grid of PDRF proposed projects in Nepal, conducted by EIA experts at the Ministry of Population and Environment, 2016.

	Determination	Consideration	Description
Proceed 77 – 84%	Exempted	Actions that are legally exempt from EIA	Projects of a type or size that do not require EIA under current regulations
	None	No potential effects	Actions that have no potential to give rise to any environmental effects
	Low	Potential effects not needing mitigation	Actions that appear to be unlikely to give rise to effects that will impinge upon the environment
	Medium	Potential effects that can be readily mitigated	Actions that are indistinguishable from the type of upgrade, repair, renewal, replacement that would occur in normal circumstance
EIA 14 – 16%	High	Potential to affect environmental sensitivities	Actions likely to lead to effects on account of their type and / or scale or because they are located within or near a sensitive environment
	Critical	Potential to affect environmental sensitivities	Actions of significant scale that are likely to significantly affect sensitive, vulnerable or protected parts of the environment
Review 1 – 8%	Unknown	Actions not finalized or affecting environments with incomplete data	Actions that may require further details about either the proposed action or further details about the purposed receiving environment

The Integrated SEA process in Nepal then continued with three stages. Firstly, through the collection of baseline data, then followed by the elaboration of synthesis maps and field verification, and lastly the implementation stage. Data gathering was first pilot-tested in one district, Sindhupalchok, before applying the methodology to the 14 most earthquake-affected districts. Within the Integrated SEA team, three thematic groups were created: Baseline, Development and Assessment, with a technical committee in charge of consultations. The first two groups were also in charge of collecting data and spatial information on land cover, national parks, geology, archaeology, settlements, rivers and drainage systems, landslide hazard, rainfalls, seismic hazard, roads networks and power transmission, for all 14 districts. The collaboration with the International Centre for Integrated Mountain Development (ICIMOD) was essential for data transformation and interpretation.

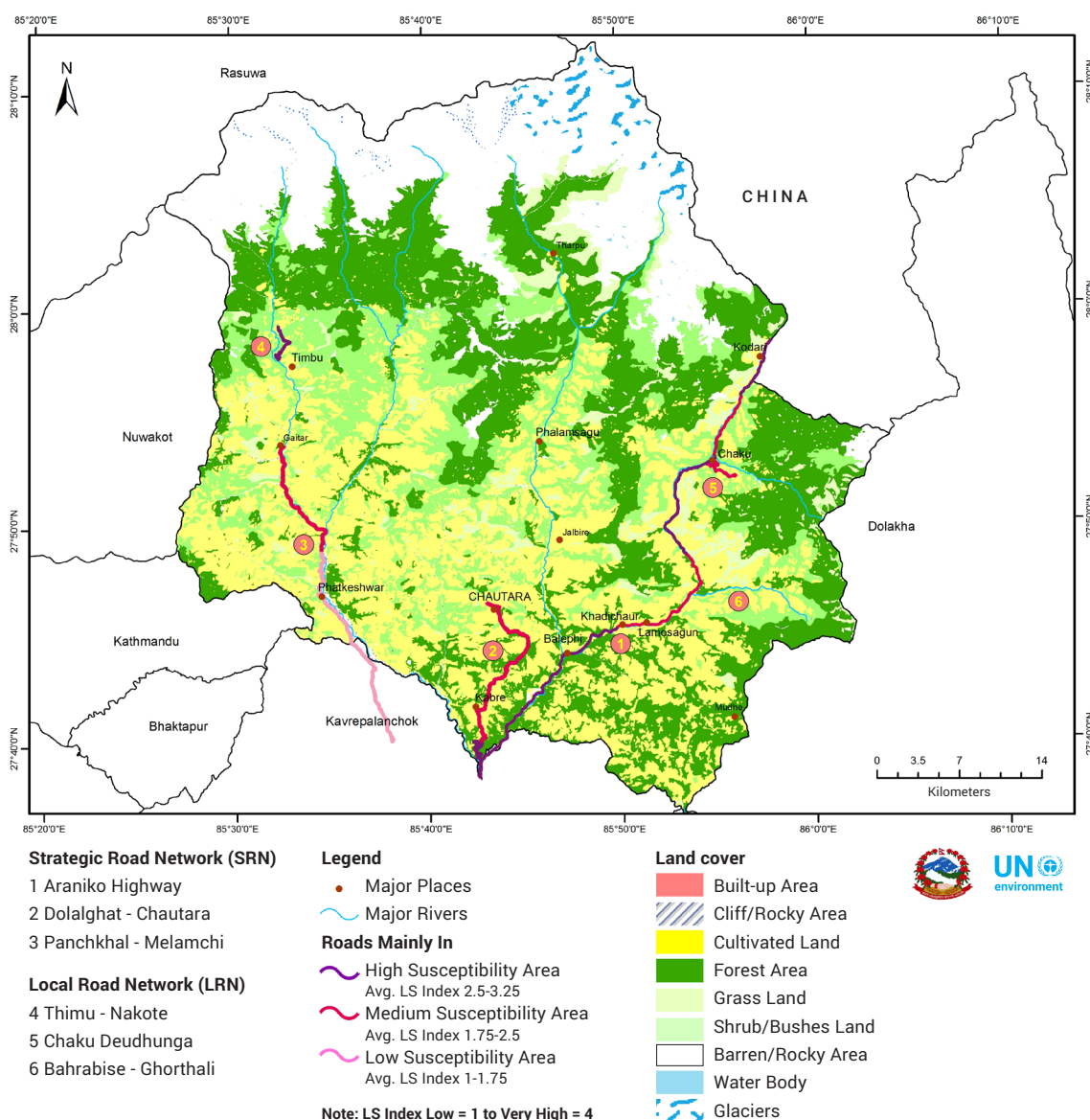
Based on the data collected, several environmental baseline maps were elaborated, at the district scale and also for the 14 districts overall. They demonstrate the main environmental sensitivities and risks for these areas, for instance the river system network or hazard-prone areas. They provide necessary preliminary information for planners, as these environmental baseline maps give a global overview of environmental and disaster risk challenges for all areas that need reconstruction. Without such an encompassing tool, every EIA process would have to gather environmental baseline data and generate similar data transformation and interpretation, for instance for the computation of landslide susceptibility. In this regard, the Integrated SEA process enabled the acceleration of the screening and scoping phases of several EIAs for road reconstruction projects. If the gathering and analysis of an environmental baseline map had been undertaken for each EIA, rather than through a system approach, the costs would have been higher and different computation methodologies would probably render comparison challenging.

Finally, based on the maps, the technical committee prioritized roads for reconstruction while taking into account environmental sensitivities and hazard considerations. Road segments were prioritized based on various types of environmental assessments, either full EIAs for strategic national roads or Initial Environmental Examinations (IEE) for smaller, district level roads. The project team also developed an index for assessing which road segments were most affected by landslide susceptibility (Figure 7). The index was generated creating a buffer zone of 300 meters' wide on each side of the road. Secondly, the level of landslide susceptibility was determined for the area close to the road. The ensuing Landslide Susceptibility (LS) Index enabled planners to identify which road segments are located in more landslide prone-areas, therefore requiring mitigation measures.

The Index categorized the road segments from very high to low, as follows:

- Index between 1 and 1.75 corresponds to an average low landslide susceptibility area
- Index between 1.75 and 2.5 corresponds to an average medium landslide susceptibility area
- Index between 2.5 and 3.25 corresponds to an average high landslide susceptibility area
- Index between 3.25 and 4 corresponds to an average very high landslide susceptibility area.

Figure 7. Post-Disaster Recovery Framework (PDRF). Roads with Landslide Susceptibility Index in Sindhupalchok District.



Source: International Centre for Integrated Mountain Development (ICIMOD), Department of Survey, Department of National Parks and Wildlife Conservation, Department of Local Infrastructure Development and Roads (DOLIDAR), Government of Nepal, 2017. In: UN Environment (2017a).

One of the major outcomes of the Post-Crisis Integrated SEA process in Nepal, was the recognition of the value of Integrated SEAs as part of long-term sustainable local level government planning by Government stakeholders. In the present scenario of state restructuring and decentralization, Integrated SEAs have the potential to be one of the most important tools for sustainable, disaster resilient, environment friendly development planning at every level of government. The Government of Nepal is keen to extend the Integrated SEA approach to other municipalities. As this document went to press, the approach is being considered by Sitganga, Birjung, Amarghardi and Issworpur Municipalities. The Government of Nepal is also considering drafting language on Integrated SEAs to be included in the revised Environmental Code.

The Government of Nepal is completing its restructuring process from a centralized system to a federal, decentralized system. Newly elected political leaders are therefore challenged to identify specific infrastructure development zones while avoiding environmentally sensitive and disaster risk prone areas. The Integrated SEA can make the mandatory EIA process more effective, while also addressing sustainable development goals.



Langtang Valley, Nepal, 2017. Credit: Karen Sudmeier-Rieux, UN Environment (2017)

CÔTE D'IVOIRE

The SEA approach in Côte d'Ivoire was undertaken with the same objectives as in Nepal. A two-year capacity-building project was undertaken from 2016 to 2017 to promote Integrated SEA, following the lessons learned in Sri Lanka, with the technical assistance of UN Environment. Following a decade of civil war and political turmoil, Côte d'Ivoire has been stable since 2012, with the Government's priorities shifting progressively from security to economic growth and development strategies. Hence, in Côte d'Ivoire the context was not of immediate post-crisis reconstruction, but rather long-term sustainable development planning in a region with numerous proposed development projects, policies and programs.

The Integrated SEA process focused on the city of San-Pédro, a major port in the south-west region of the country. In San-Pédro, development of cocoa exportation is high on the Government's agenda and flooding causes severe annual damage. This flooding threatens sustainable development efforts in the city, notably access to basic infrastructure for the population, sustainable housing settlement and road access for cocoa to be transported from rural areas to the port for exportation.

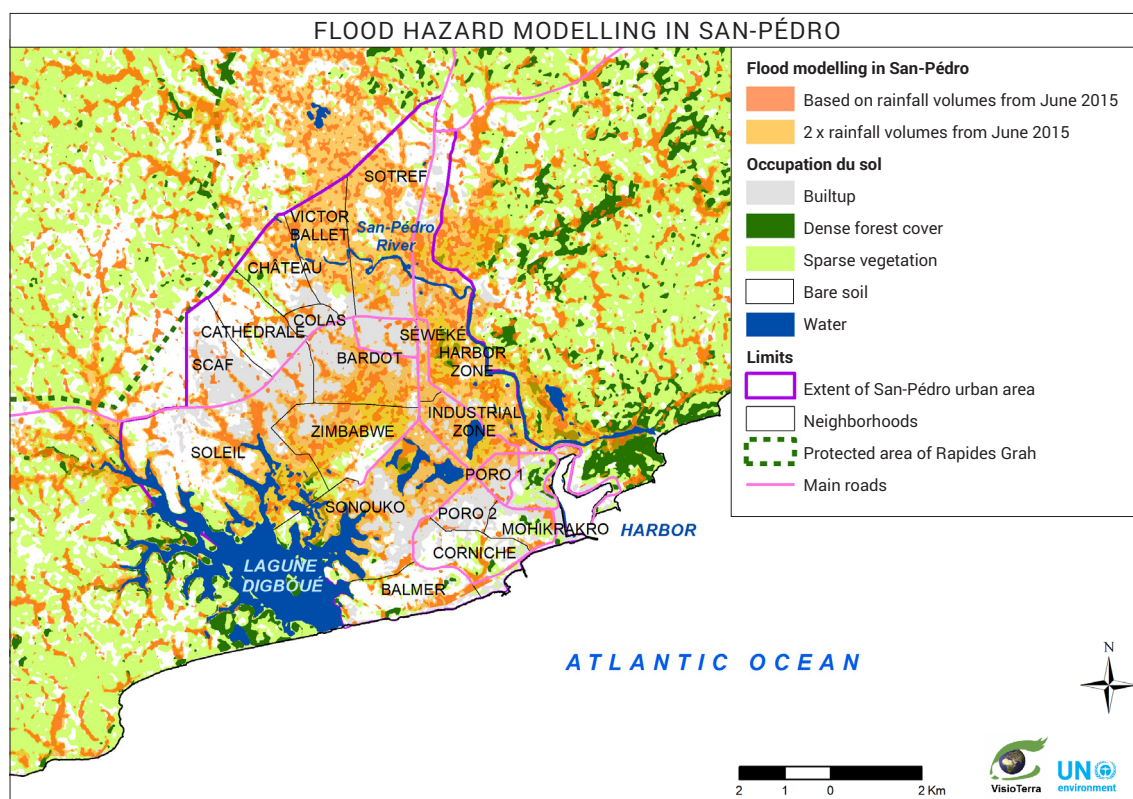
The Government established a multi-sectoral approach, led by the National Agency of Environment (ANDE) and supported by UN Environment. The participatory process brought together representatives of the Ministry of Environment and the Ministry of Construction, Urbanization and Housing, port authorities, several Municipality and Department services representatives (for natural resource management, the road sector, forestry sector), civil society organizations and academia. Technical committees were formed at the local and national levels. The San-Pédro development plan map formed the basis for discussions, which enabled a more focused data collection process to get environmental baseline data. The San-Pédro local technical committee then evaluated environmental challenges and risks posed by proposed development projects.

The main environmental challenges highlighted included deforestation trends and potential loss of vegetation cover, including mangroves, which are heavily degraded. There is widespread deforestation in the region of San-Pédro, with subsequent soil erosion and biodiversity losses. Extension of the city due to housing projects, as well as extension of the port, will likely amplify these environmental issues. Finally, coastal erosion poses a significant challenge for a city whose economic growth depends mostly on the port's activities, and which aspires to extend tourism along its coastline.

The gathering and analysis of information enabled the identification of data gaps and reinforced collaboration and data sharing between institutions in Côte d'Ivoire. According to the directive established by SEA Decree 2013-41, from 30th January 2013, a full SEA is required in order to formalize the process. However, with the assistance of remote sensing and GIS experts, the San-Pédro pilot SEA produced environmental and flood data based on remote sensing and modelling that were had not previously been available in Côte d'Ivoire (Figure 8). This preliminary mapping process was a significant step in obtaining an overview of the environmental sensitivities and hazards (flooding and coastal erosion) situation of San-Pédro and the potential issues posed by development projects on ecosystems. Stakeholders were, for the first time, able to see the extent to which neighborhoods and proposed development projects were subject to intense flooding and coastal erosion.

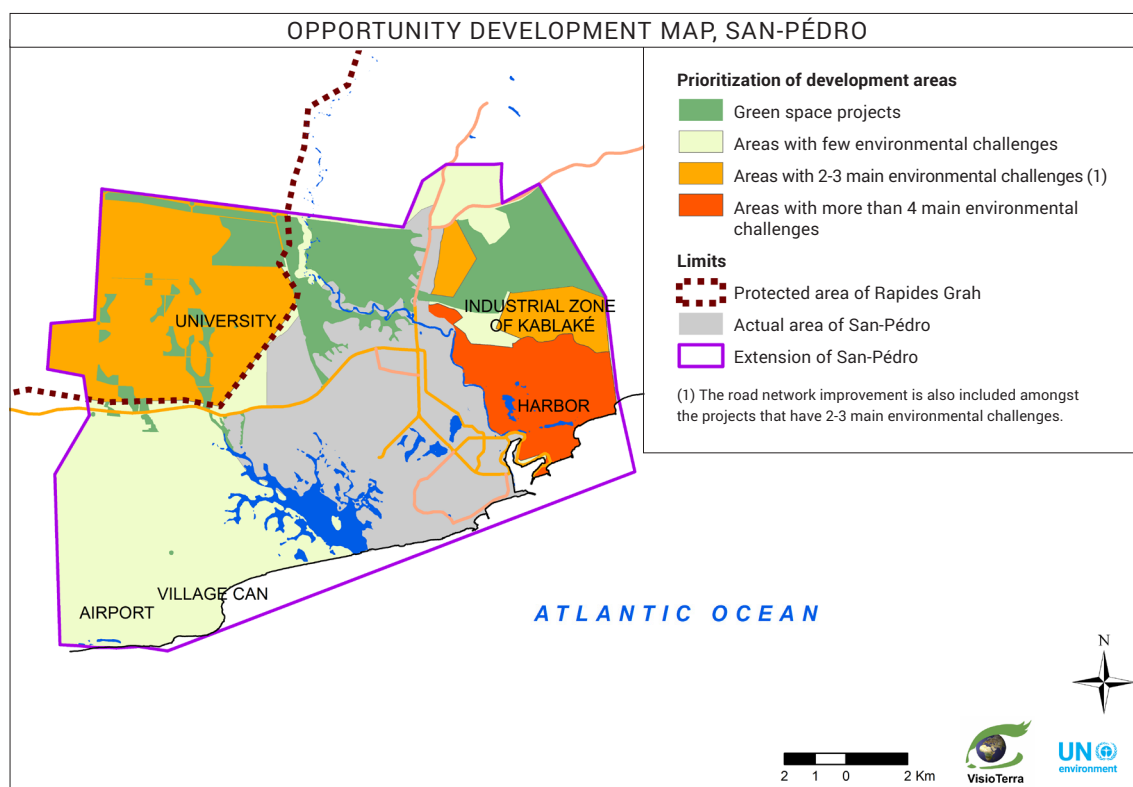
Stakeholders subsequently contributed on locally available environmental baseline data and maps of proposed development project, which were transformed into GIS data. The mapping process, the data information analysis, as well as an Opportunity Map (Figure 9) corresponded to the initial phases of a full SEA process and are documented in the Côte d'Ivoire SEA Scoping Report. ANDE has been requested to expand the Integrated SEA approach to other regions and sectors, notably transportation and mining. As this document went to press, the Government of Côte d'Ivoire is revising its decree on SEAs, which will be included in the revision process of the country's Environment Law.

Figure 8. Flood modelling in San-Pédro, Côte d'Ivoire



Sources: VisioTerra, UN Environment, National Committee for Remote Sensing (CNTIG), National Institute of Statistics (INS), South-Western Planning Authority (ARSO). In: UN Environment (2017b)

Figure 9. Opportunity map of San-Pédro, Côte d'Ivoire



Sources: VisioTerra, UN Environment, National Committee for Remote Sensing (CNTIG), National Institute of Statistics (INS), South-Western Planning Authority (ARSO). In: UN Environment (2017b)

5. Conclusions

This brief publication provides practical guidance for development planners, decision-makers and practitioners who seek to undertake an SEA, which integrates disaster and climate risks. Although it is based on practical experience of Integrated SEAs in post-crisis situations, with examples from Sri Lanka, Côte d'Ivoire and Nepal, the guidance and lessons learned can also be applied to non-crisis situations. The post-crisis context adds an additional need for urgency. The Integrated SEA process enables planners to fast-track the initial screening of potential development to reduce negative environmental, social, cultural impacts, while enhancing resilience to disaster and climate risks.

Successful Post-Crisis Integrated SEAs promote changes in behavior by participating institutions. They require commitments of staff time over a period from three months up to a year, or more. To sustain commitment, it is important to ensure that all parties are reminded of key benefits. In order for Integrated SEAs in post-crisis contexts to be seen as effective, a process should be created which:

- Provides an initial screening tool of potential projects to help fast-track decision-making and guide resources, in order to collect more relevant data for sustainable reconstruction and development;
- Gives an overview of key environmental and hazard-related issues;
- Directs attention to the cumulative effects of many projects, before undertaking individual EIAs for each project;
- Leads to greater protection of valued environmental assets while safeguarding against potential hazards and climate change impacts;
- Creates ownership of the planning process in order to ensure longer term sustainability of Integrated SEA recommendations and outcomes;
- Provides a platform for inter-sectoral dialogue and builds trust to reduce potential conflicts over development projects and
- Turns the impetus of post-crisis situations into opportunities for more resilient and sustainable planning processes.

One of the key roles of the agency with responsibility for the implementation of the Post-Crisis Integrated SEA is to identify, monitor, describe, and regularly report on, progress and success to stakeholders. The process will fail if it is perceived to be simply a bureaucratic exercise.

Lessons learned

Overall, it is clear that processes that are new, large and complex will likely experience some degree of setback. To help mitigate some of these potential challenges, UN Environment has summarized a number of lessons learned from the three country experiences with Post-Crisis Integrated SEAs. These experiences highlight the importance to:

- Build ownership and capacity of institutional planners/developers;
- Allocate adequate resources and dedicated efforts on communication and advocacy in a timely manner;
- Dispel the myth that Post-Crisis Integrated SEA will always delay the fast-tracked recovery and development process;
- Advocate the long-term advantages of Post-Crisis Integrated SEA and its benefits to communities, especially in terms of disaster resilience;
- Develop and mainstream a multi-agency monitoring system as part of the Post-Crisis Integrated SEA, including an ongoing update of data layers and sharing;
- Highlight and articulate how Post-Crisis Integrated SEA may shorten the EIA process and overcome project-by-project limitations;
- Ensure sustained political commitment and interagency cooperation during the implementation of the Post-Crisis Integrated SEA;
- Tailor the Post-Crisis Integrated SEA to the stakeholders and needs of each context;
- Combine a rapid screening tool early in the post-crisis phase with a longer-term Integrated SEA approach;
- Formalize Post-Crisis Integrated SEA recommendations and decisions into land-use planning processes, regardless of SEA legislation.

Of the aforementioned lessons learned, two are of particular importance. These are related to (a) ownership, and (b) mainstreaming.

Ownership

The implementation of a Post-Crisis Integrated SEA over a large area may require a longer-term process that would need to be managed. While the process should be owned by all stakeholders, arrangements should be put in place to ensure that a lead agency is identified to be responsible for overseeing the initial Post-Crisis Integrated SEA. The agency should ensure that the adoption of the final development plan takes into account environmental and hazard mitigation. This agency should also manage monitoring and evaluation to ensure compliance of SEA decisions and recommendations.

Mainstreaming

One of the key indicators of a successful Integrated SEA is when the process becomes part of conventional decision-making and land use planning processes. For this mainstreaming to take place, capacity needs to be built to ensure that the relevant agencies (nationally, regionally, locally) are able to take responsibility for implementation, monitoring and compliance of recommendations. This capacity includes a number of elements, from rapid environmental and hazard screening, to data compilation and decision-making. This was the main objective of UN Environment's projects, helping to ensure the greatest possible long-term sustainability of this important work.

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ANNEX 2. ADDITIONAL RESOURCES AND RELEVANT DATASETS

- The European Commission (<http://ec.europa.eu/environment/eia/sea-support.htm>) and Netherlands Commission for Environmental Assessment (www.eia.nl/en) have developed useful materials on Strategic Environmental Assessments.
- Additional useful resources and datasets can also be found through the free webinars of ARSET (Applied Remote Sensing Training), NASA (<https://arset.gsfc.nasa.gov/>). ARSET offers a wide range of online, free trainings to acquire basic and more advanced remote sensing knowledge and skills for environmental monitoring, disaster response and preparedness. The practical part of the training uses almost exclusively open source data and free software. In-person trainings are tailored to the needs of participants, through host organizations. It is possible to suggest in-person training for particular needs.
- The following table lists illustrative examples of datasets that could be useful when undertaking integrated SEAs.

Website and authors	Link	Illustrative examples of datasets	Other comments	Download possible	Format available
GENERAL DATA					
Natural Earth Data	http://www.naturalearthdata.com/downloads/	Coastlines, country boundaries, bathymetry, shaded relief, populated places	Available in different scales and resolutions	Yes	raster, shapefile
Humanitarian Data Exchange	https://data.humdata.org/	Healthcare facilities, roads, settlements, population, water bodies, IDPs, economic and social indicators		Yes	shapefile, often
Database of Global Administrative Areas (GADM)	https://gadm.org/download_country_v3.html	Administrative boundaries		Yes	shapefile
ENVIRONMENT					
UN Environment World Conservation Monitoring Center, World Database on Protected Areas	https://protectedplanet.net/	Polygons of all major protected areas in the world		Yes	shapefile
UN Environment, Map-X	https://app.mapx.org/		Not a data provider per se, a visualization platform; global datasets and by countries; dynamic website as more datasets are added	Depends	mostly shapefile
UN Environment, Global Resource Information Database (GRID)	http://geodata.grid.unep.ch/	Various geospatial datasets on environment. Notably data from EITI (Extractive Industries Transparent Initiatives) on extractives	Not only maps, also graphs and data tables; mostly global datasets	Yes	various
Global Forest Watch	http://geodata.grid.unep.ch/globalforestwatch.org/map/3/15.00/27.00/ALL/grayscale/loss;forestgain;forest2000?tab=analysis-tab&begin=2001-01-01&end=2017-01-01&threshold=30&dont_analyze=true	Mostly for forest monitoring (tree cover loss, tree cover gain, tree cover, mangroves, oil palm), also some datasets on land use	Excellent visualization tool, and contextual information	Yes (by country)	shapefile
University of Maryland Global Forest Change	https://earthenginepartners.appspot.com/science-2013-global-forest	Forest monitoring (forest loss, gain, tree cover)	Allows historical comparative analysis between 2016 and 2000	Yes (by 10x10 degree granules)	raster
DISASTER RISK					
UN Environment, GRID-Geneva, Preview Global Risk Data Platform	http://preview.grid.unep.ch (Data visualization in page 'Map')	Risk, exposure, hazards datasets for all major disaster risks	Excellent dataset for the global or national scale	Yes, and also OGC-webservices (can be used in a software such as QGIS)	mostly raster
The Atlas of the Human Planet 2017 - Global Exposure to Natural Hazards	http://ghsl.jrc.ec.europa.eu/atlas2017Overview.php	Global Exposure to Natural Hazards summarizes the global multi-temporal analysis of exposure to 6 major natural hazards: earthquakes, volcanoes, tsunamis, floods, tropical cyclone winds, and sea level surge. The exposure focuses on human settlements assessed through 2 variables: the global built-up and the global resident population. The two datasets are generated within the Global Human Settlement Project of the Joint Research Centre. They represent the core dataset of the Atlas of the Human Planet 2016, which provides empirical evidence on urbanization trends and dynamics.	A new open and free tool for assessing the human presence on the planet Produces new global spatial information, evidence-based analytics and knowledge describing the human presence on the planet	Yes	various

ANNEX 3. EXAMPLES OF INDICATORS

Environmental

Biodiversity

- Conservation status of protected habitats and species
- Percentage loss of functional connectivity to macro-corridors, stepping stones and contiguous areas of habitat, as evidenced by future habitat mapping

Soil

- Loss of agricultural land to settlement or loss of natural habitat to agriculture, as indicated by remote sensing data

Water [Quality]

- *Surface water:* Water Quality Status, compared to relevant national standards
- *Groundwater:* Groundwater Quality Standards, as specified by relevant national standards

Water [Wastewater Treatment]

- Percentage of new developments with adequate and appropriate waste water treatment

Landscape

- Number of complaints, especially from the tourism sector, about impacts on views and scenery

Pollution/Human health

- Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors, as identified by cluster mapping of disease or illness

Cultural Heritage

- Percentage of archaeological sites damaged during a 5-year period

Hazard/climate related

- Number of vulnerable activities and developments that are permitted in areas at high risk of natural disasters.

