

*Cumulative Environmental Impacts in Thailand: A legal
Appraisal of the EIA Regime under NEQA*

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ผลกระทบสิ่งแวดล้อมสะสมในประเทศไทย: การประเมินเชิงกฎหมายของระบบ
การประเมินผลกระทบสิ่งแวดล้อม (EIA) ภายใต้พระราชบัญญัติส่งเสริมและ
รักษาคุณภาพสิ่งแวดล้อมแห่งชาติ

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งานวิจัยฉบับนี้ศึกษาข้อจำกัดของกรอบการประเมินผลกระทบทางสิ่งแวดล้อม (Environmental Impact Assessment หรือ EIA) ของประเทศไทย ภายใต้พระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. 2535 โดยมุ่งเน้นไปยังปัญหาการจัดการกับ “ผลกระทบทางสิ่งแวดล้อมเชิงสะสม” (cumulative environmental impacts) ในพื้นที่ที่มีการท่องเที่ยวหนาแน่น เช่น จังหวัดภูเก็ต เกาะสมุย และเชียงใหม่ แม้ว่าการประเมินผลกระทบทางสิ่งแวดล้อม (EIA) จะถูกนำมาใช้เพื่อให้มั่นใจว่าความเสี่ยงด้านสิ่งแวดล้อมจะได้รับการพิจารณาก่อนการอนุมัติโครงการ แต่ในทางปฏิบัติ ระบบการพิจารณาของประเทศไทยยังคงมีลักษณะจำกัดอยู่ที่ระดับ “โครงการรายโครงการ” โดยละเลยการพิจารณาผลกระทบสะสมจากโครงการขนาดเล็กและขนาดกลางหลายโครงการที่เมื่อรวมกันแล้ว ผลกระทบที่เกิดขึ้นจะมีระดับที่สูงเกินกว่าความสามารถในการรองรับของระบบนิเวศ และย่อมส่งผลให้เกิดการเสื่อมโทรมทางสิ่งแวดล้อมอย่างรุนแรง เช่น การเสื่อมโทรมของแนวปะการัง การขาดแคลนน้ำจืด การกัดเซาะชายฝั่ง และคุณภาพอากาศที่เลวร้ายลง ซึ่งล้วนเป็นภัยคุกคามต่อความยั่งยืนในระยะยาวของเศรษฐกิจการท่องเที่ยวของประเทศไทย

งานวิจัยนี้ใช้ระเบียบวิธีวิจัยเชิงเอกสารทางกฎหมายควบคู่กับการวิเคราะห์เชิงเปรียบเทียบ โดยประเมินกรอบการประเมินผลกระทบทางสิ่งแวดล้อมของประเทศไทยกับข้อกำหนดการประเมินผลกระทบเชิงสะสมตามพระราชบัญญัตินโยบายสิ่งแวดล้อมแห่งชาติของสหรัฐอเมริกา พ.ศ. 2512 (National Environmental Policy Act (NEPA) 1969) และการกำหนดกรอบเชิงยุทธศาสตร์ ตามข้อกำหนดของสหภาพยุโรปว่าด้วยการประเมินสิ่งแวดล้อมเชิงยุทธศาสตร์ พ.ศ. 2544 (Strategic Environmental Assessment (SEA) Directive 2001) ที่มีขอบเขตกว้างกว่าการประเมินผลกระทบทางสิ่งแวดล้อมของไทย

ผลการศึกษาแสดงให้เห็นว่า การที่กฎหมายไทยขาดกลไกการประเมินผลกระทบเชิงสะสม ได้บั่นทอนหลักการสำคัญของกฎหมายสิ่งแวดล้อม อันได้แก่ หลักการป้องกันไว้ก่อน หลักผู้ก่อมลพิษเป็นผู้จ่าย และความยุติธรรมด้านสิ่งแวดล้อม งานวิจัยชิ้นนี้ จึงเสนอให้มีการปฏิรูปพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. 2535 เช่น การบรรจุกลไกการประเมินผลกระทบเชิงสะสม การสร้างการมีส่วนร่วมของประชาชนตั้งแต่ระยะเริ่มต้น และให้การมีส่วนร่วมของประชาชนมีบทบาทที่สำคัญมากขึ้นต่อกระบวนการตัดสินใจ ตลอดจน การเสริมสร้างกลไกการติดตามและการบังคับใช้กฎหมายให้เข้มแข็งขึ้น การปฏิรูปดังกล่าวจะช่วยให้กรอบการประเมินผลกระทบสิ่งแวดล้อมของประเทศไทยสอดคล้องกับมาตรฐานสากลมากขึ้น และช่วยคุ้มครองระบบนิเวศที่เปราะบาง ทั้งยังสนับสนุนการกำกับดูแลการท่องเที่ยวอย่างยั่งยืน

Abstract

This Research examines the limitations of Thailand's Environmental Impact Assessment (EIA) framework under the Enhancement and conservation of National Environmental Quality Act B.e. 2535 (1992) (NEQA), with a focus on its failure to address cumulative environmental impacts in tourism-intensive regions such as Phuket, Koh Samui, and Chiang Mai. While EIA was originally introduced to ensure that environmental risks are considered before project approval, in practice Thailand's system remains narrowly project-based, overlooking the combined effects of multiple small and medium scale development that together exceed ecological carrying capacity. This has contributed to serious environmental degradation, including coral reef decline, freshwater depletion, beach erosion, and worsening air quality, all of which threaten the long-term sustainability of Thailand's tourism economy. The study employs a doctrinal legal research methodology with comparative analysis. Thailand's EIA framework is evaluated against the cumulative impact assessment requirements under the United States' National Environmental Policy Act (NEPA) of 1969 and the broader planning scope of the European Union's Strategic Environmental Assessment (SEA) Directive of 2001. The findings indicate that the absence of cumulative impact assessment in Thai law undermines key principles of environmental law, including the Precautionary Principle, the Polluter Pays Principles, and Environmental Justice. Drawing on comparative models, the research proposes reforms to NEQA 1992, including the incorporation of cumulative impact assessment, earlier and more meaningful public participation, and strengthening monitoring and enforcement mechanisms. These reforms would better align Thailand's EIA framework with international standards, safeguard fragile ecosystems, and support sustainable tourism governance.

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List of Abbreviations

CEQ	Council on Environmental Quality (U.S.)
CIA	Cumulative Impact Assessment
EC	European Commission
ECHO	Enforcement and Compliance History Online (U.S.)
EIA	Environmental Impact Assessment
EIONET	European Environment Information and Observation Network
EIS	Environmental Impact Statement (U.S.)
EHIA	Environmental and Health Impact Assessment (Thailand)
EPA	Environmentally Protected Areas (U.S.)
ERC	Expert Review Committee (Thailand)
EU	European Union
GDP	Gross Domestic Product
IISD	International Institute for Sustainable Development
LOA	Local Administrative Organisation (Thailand)
MoNRE	Ministry of Natural Resources and Environment (Thailand)
MOU	Memorandum of Understanding
NEB	National Environment Board (Thailand)
NEPA	National Environmental Policy Act (Thailand)
NEQA	Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) (Thailand)
NGO	Non-Governmental Organisation
OECD	Office of Natural Resources and Environmental Policy and Planning (Thailand)

POA	Provincial Administrative Organisations (POA)
PPPs	Policies, Plans, and Programmes
SOA	Subdistrict Administrative Organisations (Thailand)
SEA	Strategic Environmental Assessment
TFEU	Treaty on the functioning of the European Union
ToR	Terms of Reference
U.S.	United States

Chapter 1: Introduction

1.1 Thesis Statement

This research examines the limitations of Thailand's Environmental Impact Assessment (EIA) framework, as established under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) (NEQA), in addressing cumulative environmental impacts in tourism-intensive regions such as Phuket, Koh Samui, and Chiang Mai. It argues that the current system remains narrowly project-based and insufficiently equipped to assess the combined pressures of multiple developments. To identify opportunities for reform, the study undertakes a comparative legal analysis, focusing primarily on the United States' National Environmental Policy Act (NEPA) of 1969, which pioneered cumulative and connected impact assessment within a formal EIA framework. In addition, reference is made to the European Union's Strategic Environmental Assessment (SEA) Directive of 2001, which extends environmental assessment to policies, plans, and programmes, thereby institutionalising cumulative consideration at higher levels of decision-making. These comparative models provide Thailand with valuable lessons for reforming its EIA framework to better safeguard fragile ecosystems, strengthen environmental governance, and advance sustainable tourism development.

1.2 Research Questions

This study addresses the following questions:

1. How effectively does Thailand's EIA law address cumulative environmental impacts?
2. How can Thailand improve its EIA framework to manage cumulative impacts, particularly in tourism-intensive regions?
3. What lessons can be drawn from the U.S. NEPA and the EU SEA Directive?

1.3 Background & History

Thailand's environmental legal framework developed in the 1970s and 1980s during a period of rapid industrialisation and urbanisation. The enactment of the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) (NEQA) was a major step,

making EIA mandatory for designated projects. However, the system was designed for single projects, and did not incorporate wider considerations of cumulative or regional impacts.

On a personal note, my interest in this subject stems from long-standing ties to Thailand. For many years I visited the country as a tourist, often welcomed by close Thai family friends who later inspired my decision to pursue my master's studies here because of the country's strong academic reputation. Living in Thailand now, rather than experiencing it as a visitor, has given me a new lens through which to appreciate its complexity. While I remain deeply struck by its natural beauty and cultural richness, I have also become more aware of the environmental pressures that are less visible to tourists, such as pollution and ecosystem strain. This shift in perspective has reinforced my awareness of the importance of environmental law in safeguarding the country's long-term sustainability.

In recent decades, Thailand has emerged as one of the world's most popular tourist destinations, with tourism contributing a significant share to the national Gross Domestic Product (GDP). Yet, keeping pace with this rapid growth has had environmental consequences. In Phuket, Koh Samui, and Chiang Mai, continuous development of resorts, hotels, and supporting infrastructure has placed significant strain on coastal, marine, and upland ecosystems. Small and medium projects, each assessed in isolation, have collectively caused erosion, coral reef degradation, water scarcity, and loss of air quality. The Thai EIA framework has not adapted to capture these combined pressures, leaving a major gap in protection.

Internationally, other jurisdictions moved earlier to incorporate cumulative impacts into law. The United States, through NEPA in 1969, introduced the concept of EIA and required federal agencies to assess cumulative and connected impacts in Environmental Impact Statements. The European Union, through the SEA Directive of 2001, requires assessment at the level of policies, plans, and programmes, making cumulative consideration unavoidable. Compared with these developments, Thailand has remained focused on a narrow project-based model.

1.4 Problem Identification

Thailand's EIA regime does not systematically assess cumulative impacts. Projects are evaluated individually, and their combined effects on ecosystems are overlooked. In tourism-heavy regions, it is the large number of medium and small projects, rather than one major development, that has driven environmental decline. For example, in Phuket, the expansion of resorts has

contributed to beach erosion, coral reef damage, and depletion of freshwater resources. Each project has complied with individual EIA requirements, but taken together the projects exceed the ecological carrying capacity of the island. The EIA system has no mechanism to address this cumulative overload.

While cumulative impacts form the central concern of this research, it should be noted that they intersect with other limitations of the Thai EIA framework, including weaknesses in public participation, monitoring, and enforcement. These dimensions will be further addressed in later chapters as part of a holistic analysis of EIA effectiveness.

1.5 Impact

The absence of cumulative impact assessment in Thailand's EIA framework has produced serious environmental, economic, and governance consequences. In Phuket, coral reef decline, beach erosion, and waste crises illustrate how individually approved resorts and hotels can collectively exceed the island's ecological capacity. In Koh Samui, unchecked hillside development and resort construction have contributed to freshwater shortages and soil erosion, undermining both ecosystems and local livelihoods. In Chiang Mai, seasonal haze and worsening air quality highlight how tourism-related activities intensify existing environmental pressures, with direct consequences for public health.

These environmental losses translate into economic risks. Tourism is a pillar of Thailand's GDP, but degraded beaches, polluted waters, and declining air quality threaten its long-term competitiveness as a destination. Local communities, whose livelihoods often depend on natural resources, bear the costs of ecological decline while receiving limited protection from existing EIA safeguards.

The credibility of Thailand's legal and institutional framework is also at stake. When environmental degradation persists despite the formal presence of EIA and EHIA procedures, public trust in environmental governance is weakened. Thailand's international image could also be affected if its natural assets, central to tourism, are not more effectively safeguarded. Unless reform is undertaken to incorporate cumulative impact assessment and strengthen participation, monitoring, and enforcement, the gap between legal procedure and environmental reality will continue to widen.

1.6 Legal Issue

The central legal issue is whether Thailand's EIA framework under NEQA 1992 sufficiently incorporates cumulative environmental impact assessment in a manner consistent with established principles of environmental law and comparative practice. In particular, the analysis considers whether the absence of cumulative assessment undermines the Precautionary Principle, the Polluter Pays Principle, and Environmental Justice, and how Thailand's framework compares with international standards such as the United States' NEPA cumulative impact requirements and the European Union's SEA Directive.

1.7 Objectives

This research aims to:

- Examine how the U.S. NEPA pioneered the integration of cumulative and connected impact assessment, and assessed its relevance for Thailand.
- Analyse the limitations of Thailand's EIA framework under NEQA 1992, particularly its failure to address cumulative environmental impacts in tourism-heavy regions.
- Consider the supplementary insights offered by the EU SEA Directive, particularly its role in requiring assessment at the level of policies, plans, and programmes, and contrast this with Thailand's current non-binding SEA practice.
- Develop recommendations for reforming Thailand's EIA law to mandate cumulative impact assessment and strengthen its alignment with principles of precaution, polluter pays, and environmental justice.

1.8 Hypothesis

This research hypothesises that Thailand's EIA system under NEQA 1992, by focusing narrowly on individual projects, fails to capture the cumulative environmental impacts of tourism-heavy regions such as Phuket, Koh Samui, and Chiang Mai. This gap undermines principles such as precaution, polluter pays, and environmental justice. Comparative lessons from the U.S. NEPA and the EU SEA Directive are expected to guide reforms that can better safeguard ecosystems and support sustainable tourism governance.

1.9 Methodology

This study employs a doctrinal legal research approach with comparative analysis. It examines statutes, regulations, constitutional provisions, case law, policy documents, and academic literature. Thailand's EIA framework under NEQA 1992 is evaluated against the U.S. NEPA and the EU SEA Directive in order to identify gaps and develop recommendations for reform.

1.10 Limitations

The main limitation of this research is its reliance on English-language sources. Although the initial plan was to use Japan as the primary comparative model, access to original Japanese legislation and detailed materials in English translation proved very limited. For this reason, the study focuses instead on the U.S. NEPA, which not only provides extensive documentation but is also the origin of the modern EIA framework, making it an appropriate basis for comparison.

Another limitation is the availability of Thai scholarships. While a number of valuable academic works by Thai scholars were consulted in English, many important studies and commentaries remain accessible only in Thai. Broader engagement with these perspectives would have enriched the analysis, particularly since they reflect the insights of local experts directly engaged with the Thai EIA system.

Finally, the research is confined to EIA law and its treatment of cumulative impacts in tourism-heavy regions of Thailand. Broader questions of environmental governance, climate change law, and land-use planning are only addressed where they directly intersect with the scope of this study.

1.11 Benefits

This research contributes to both academic and policy discussions by highlighting gaps in Thailand's current EIA framework and proposing reforms to address cumulative environmental impacts. The findings are expected to benefit policymakers by offering practical legal reforms, local communities by strengthening environmental protection in tourism-heavy regions, and Thailand's economy by safeguarding the natural assets on which tourism depends. More broadly, the research aims to align Thailand's EIA practice with international standards while advancing principles of sustainable development and environmental justice. In addition, strengthening EIA safeguards in tourism regions may also cultivate greater awareness among tourists themselves. By recognising

that their enjoyment of Thailand's beaches, reefs, and forests comes at the cost of intense local environmental pressures, visitors may develop a deeper appreciation for the country's efforts to protect these ecosystems and adopt more socially responsible travel practices.

Chapter 2: The Concept of Environmental Risk Assessment

Legal reform fails when the core concepts are unclear. Thailand's current EIA regime struggles not only because procedures are weak, but because the ideas that should animate them, such as what counts as an "impact", how to treat uncertainty, who bears costs, and whose knowledge counts, are often treated as background. This chapter brings those ideas to the foreground and shows why clear definitions and foundational environmental principles are not optional academic refinements but preconditions for credible assessment, enforceable duties, and public trust, especially in tourism-heavy regions where many small approvals accumulate into large ecological change. It sets a coherent conceptual frame for EIA, clarifies the distinct problem of cumulative effects across space and time, and positions upstream tools like SEA and complementary tools like cumulative impact assessment as part of a single, mutually reinforcing architecture. This chapter is the roadmap to what follows, moving from definitions to the frameworks used to evaluate Thailand's current law and to shape the reforms advanced later in the study.

2.1 Environmental Principles for Environmental Risk Assessment

An effective environmental risk assessment requires fundamental legal considerations that set the limits of permissible environmental alteration alongside the evaluation and management procedures of risk. These legal frameworks, which include the precautionary principle, the polluter pays principle, and the public participation principle, do not stand as abstractions. They are established international guidelines which shape the anticipatory governance of responsibility and management of environmental risk, especially when such risks are systemic and temporarily extended.

2.1.1. Precautionary Principle

The Precautionary Principle stipulates that for potential severe or irreversible damage, the absence of complete scientific certainty cannot justify inaction in protecting the environment. Principle 15 of the Rio Declaration (1992) maintained that states shall act within their means, adopting a precautionary approach.¹ The International Institute for Sustainable Development (IISD)

¹ UN Conference on Environment and Development, Rio Declaration on Environment and Development (12 August 1992) UN Doc A/CONF.151/26/Rev.1 (Vol. I), Principle 15.

captured this well by stating that this principle reserves the burden of proof where the person or organisation proposing the action bears the responsibility to show that it is safe.² The principle was then further integrated into the European Union legal order (Article 191(2) of the Treaty on the Functioning of the European Union (TFEU)) and is conveyed in numerous domestic environmental laws. The precautionary consideration within a cumulative risk approach is critical.³ The preemptive action regulators propose to take is necessary due to the nature of environmental damages, particularly when ecosystems are vulnerable and multi-layered damages that often go unnoticed.

2.1.2. Polluter Pays Principle

According to the Polluter Pays Principle, individuals or organisations whose actions lead to environmental damage must incur the costs involved in preventing, mitigating, or removing the damage. This obligation is reflected in Principle 16 of the Rio Declaration⁴ and is further supported by the OECD⁵, which recognises it as a key component of environmental economic policy. According to the European Commission (EC), this principle helps to correct market imbalances by ensuring that those who cause environmental harm are financially responsible, rather than shifting the burden to others who were not involved.⁶ In relation to groundwater depletion or coastal erosion due to multiple tourism developments, the application of the polluter pays principle requires movement away from project-based allocation of responsibility towards transboundary or collective culpability for regional environmental harm.

2.1.3. Public Participation

The public participation is developed from Principle 10 of the Rio Declarations and further elaborated in the Aarhus Convention (1998) which affirms “the entitlement of citizens to access environmental information, engage in decision-making processes, and seek justice when

² IISD, *Compendium of Sustainable Development Indicator Initiatives* (International Institute for Sustainable Development, 2005) <https://www.iisd.org> accessed 24 July 2025.

³ Consolidated Version of the Treaty on the Functioning of the European Union [2012] OJ C326/47, article 191(2).

⁴ UN Conference on Environment and Development, *Rio Declaration on Environment and Development* (12 August 1992) UN Doc A/CONF.151/26/Rev.1 (Vol. I), Principle 16.

⁵ OECD, *The Polluter-Pays Principle: Definition, Analysis, Implementation* (OECD 1992) <https://www.oecd.org/env/ehs/26744049.pdf> accessed 24 July 2025.

⁶ European Commission, *Guidance Document on the Implementation of the Polluter Pays Principle* (2021) https://environment.ec.europa.eu/publications/polluter-pays-principle_en accessed 24 July 2025.

necessary.”⁷ These rights enhance democratic participation and contribute to more accountable environmental governance. When public involvement is strong, it becomes easier to identify and respond to localised and systemic inequalities, thereby reducing the risk of uneven environmental burdens.

In the context of cumulative impact assessment (CIA), participation should be early, meaningful, and facilitate consideration of long-term, not just short-term development risks. These principles do not only exist as ideal laws but provide necessary legal frameworks to give substance and procedure to environmental assessment. Instead of being discrete, they construct the manner in which the environmental systems anticipate harm, allocate responsibility, and involve the public in decision making for local, regional, and global ecosystems. The application of the year 2020 shattered the myth that environmental damage could be controlled within certain boundaries: the precautionary principle exposes the greatest challenge to rational environmental oversight. Indeed, usually by the time mitigative actions can be taken, definitive proof of harm is established. This requires an approach that looks to the future and is particularly useful for assessing impacts that are cumulative in nature and often go unnoticed for long periods of time. The polluter pays principle contributes to capturing accountability at a legal level, since it adds a responsibility lens to ensure that environmental costs do not get subsidised by the public or pushed into the future.⁸

This is crucial in situations of diffuse responsibility, like in heavily visited areas with environmental degradation tourism, where the multiple, interlinked impacts of numerous projects and activities tend to exceed the foreseeable limits of what the environment can sustain. The public participation principle adds procedural legitimacy as well as distributive justice to risk assessment.⁹ Participation helps ensure that affected communities are not treated as distributive justice to risk assessment. Furthermore, participation helps ensure that affected communities are not treated as passive stakeholders who are merely informed after decisions are made. Instead, their perspectives and local knowledge can actively shape the scope and direction of environmental assessments. When these core principles are genuinely embedded into the assessment process, environmental impact assessments, strategic assessments, and cumulative assessments evolve from routine

⁷ UN Conference on Environment and Development, *Rio Declaration on Environment and Development* (12 August 1992) UN Doc A/CONF.151/26/Rev.1 (Vol. I), Principle 10.

⁸ Organisation for Economic Co-operation and Development. *The Polluter Pays Principle: Definition, Analysis, Implementation*. OECD, 1975, p.6.

⁹ United Nations Economic Commission for Europe (UNECE), *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters* (adopted 25 June 1998, entered into force 30 October 2001) 2161 UNTS 447, article 6 (Aarhus Convention).

technical exercises into meaningful instruments that guide development in a more equitable and sustainable direction. Environmental assessment cannot evolve into a ritualistic exercise conducted after development initiatives have been implemented; it must actively inform decision-making and guide actions and be grounded in law, allowing people to proactively shape their societies and respond to the complexities arising from development. In the chapters that follow, these principles will serve as a critical lens through which the legal and procedural strengths and limitations of existing systems, particularly in Thailand, will be evaluated.

2.2 Environmental Impact Assessment

2.2.1. Definition and Scope

Environmental Impact Assessment (EIA) is a legal and planning tool used to identify, evaluate, and take account of the potential environmental consequences of proposed development activities before decisions are finalised.¹⁰ The EIA process is not only about compliance; its aim is to integrate environmental reasoning into planning decisions at a stage where change is still possible. The process was first introduced in the United States through the National Environmental Policy Act (NEPA) of 1969, which established the requirement for an Environmental Impact Statement (EIS) outlining the expected environmental consequences of a proposed activity.¹¹ Since then, EIA has evolved into a widely adopted global framework.¹² Although different jurisdictions implement the EIA in distinct ways¹³, the central objective remains consistent: to support better decisions by identifying environmental risks early on, giving decision-makers and the public the opportunity to address them before projects move forward.¹⁴

The EIA is typically expected to achieve three interconnected functions: (i) prediction, (ii) prevention, and (iii) accountability.¹⁵ Project proponents are required to assess a range of

¹⁰ Christopher Wood, *Environmental Impact Assessment: A Comparative Review* (2nd edn, Pearson 2003) pp. 1-2.

¹¹ *ibid.*

¹² National Environmental Policy Act of 1969, 42 USC § 4321 et seq.

¹³ Christopher Wood, *Environmental Impact Assessment: A Comparative Review* (2nd edn, Pearson 2003) 1

¹⁴ *ibid.*, p. 2.

¹⁵ Sanaa University. *Environmental Impact Assessment: Lecture Notes* (2019), p. 8. *National Digital Library of Ethiopia*, <http://ndl.ethernet.edu.et/bitstream/123456789/79247/2/Lecture%20Notes%20ENVIRONMENTAL%20IMPACT%20ASSESSMENT%20SANNA%20UNIVERSITY%20-%20YEMEN.pdf>, accessed 22 July 2025.

environmental impacts their proposed activities might cause. These include direct and indirect effects, as well as cumulative ones that result from a combination of developments over time.¹⁶ Impacts may affect human health, biodiversity, water and air quality, or the availability of land and natural resources which will be analysed later on for Chiang Mai, Phuket and Koh Samui. In response to this, the EIA should not only outline the potential harms, but also propose mitigation measures and feasible alternatives, especially when adverse impacts cannot be avoided entirely.¹⁷

In most jurisdictions, the EIA process follows a defined sequence. Screening is conducted first to determine whether a full EIA is required. Then, scoping is used to identify the key environmental factors and stakeholders to be considered. This is followed by impact analysis and public consultation.¹⁸ The findings are compiled into an Environmental Impact Statement (EIS), which is reviewed by the competent authority. The final decision is based on this assessment, often with conditions attached. Many jurisdictions also include post-approval monitoring to ensure that mitigation measures are implemented and unforeseen impacts are addressed as they emerge. While these stages are consistent across countries, their effectiveness depends on institutional capacity, procedural design, and the willingness of authorities to act on the information provided.¹⁹ At its best, the EIA offers a transparent, participatory process that improves the legitimacy of environmental decisions. However, its actual effectiveness varies considerably depending on context and enforcement.²⁰

2.2.2. *The Ideal EIA*

Literature and essential legal instruments identify several fundamental characteristics of an Environmental Impact Assessment (EIA) process which is regarded as effective. At its core, an EIA is the integration of environmental considerations into planning and decision-making, aimed at achieving sustainable development. Since the structural inception of the EIA system in the United States through the National Environmental Policy Act of 1969 (NEPA), §102(2)(C) which requires

¹⁶ Council on Environmental Quality (CEQ), *Regulations for Implementing the Procedural Provisions of NEPA*, 40 CFR § 1508.1(i) (2020).

¹⁷ Leonard Ortolano and Anne Shepherd, 'Environmental Impact Assessment: Challenges and Opportunities' (1995) 13(1) *Impact Assessment* 3, p. 10.

¹⁸ European Parliament and Council Directive 2011/92/EU of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment [2012] OJ L26/1, articles 5-6.

¹⁹ Christopher Wood, *Environmental Impact Assessment: A Comparative Review* (2nd edn, Pearson 2003), p. 11.

²⁰ *ibid*, p.9

that all federal agencies include in every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment a detailed statement addressing reasonably foreseeable environmental effects, unavoidable adverse effects, alternatives including the no-action alternative, short-term versus long-term uses, and irreversible commitments of resources, the framework has expanded across jurisdictions, adopting increasingly robust principles to ensure that environmental planning and protection are embedded at the earliest stages of projects and programmes.²¹ An EIA process is said to be “ideal” when it extends beyond the mere production of a document, instead becoming a system which substantively influences planning decisions through early public involvement, comprehensive evaluation of impacts, and strong enforcement during follow-up.²² Such a process is normally anchored in law and supported by fundamental principles of transparency, participation, accountability, and precaution, integrated holistically to shape the way environmental governance is carried out.²³

A key feature of the ideal EIA is the early participation of the public, ensuring that individuals, communities, and stakeholders are not invited to respond only after a decision has been taken, but are involved at the formative stage of project scoping and policy drafting. The European Union’s SEA Directive (2001/42/EC) affirms this principle under Article 6, requiring that authorities give the public an “early and effective opportunity” to comment on draft plans before they are adopted.²⁴ This emphasis on participation not only enriches assessments by drawing upon local knowledge but also builds legitimacy, accountability, and trust in the decision-making process.²⁵

The ideal EIA is also integrated into broader policy and planning processes, rather than being confined to a narrow project-based approach. The SEA Directive explicitly establishes that environmental assessment must contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes “with a view to promoting sustainable

²¹ United States. *National Environmental Policy Act of 1969*. Pub. L. 91-190, 83 Stat. 852, §102(2)(C); codified at 42 U.S.C. §4332(2)(C).

²²Bond, Alan, et al. "Impact Assessment: Eroding Benefits through Streamlining?" *Environmental Impact Assessment Review*, vol. 45, no. 1, 2014, pp. 46-53.

²³Arnold, Lauren, and Kevin Hanna. *Best Practices in Environmental Assessment: Case Studies and Application to Mining*. Canadian International Resources and Development Institute, 2017, pp. 3-4.

²⁴ European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 6.

²⁵Bond, Alan, et al. "Impact Assessment: Eroding Benefits through Streamlining?" *Environmental Impact Assessment Review*, vol. 45, no. 1, 2014, pp. 50.

development”.²⁶ The latter ensures that environmental concerns are considered upstream, at the level of policies and strategies, ensuring that alternatives are genuinely explored, including the “no-action” alternative, and that environmental sustainability is incorporated into the overall design of development initiatives.²⁷

Another essential feature is transparency and accountability. An effective EIA requires that all information, from baseline data to impact predictions, is open and accessible, and that authorities explain how environmental considerations and public opinions have been integrated into final decisions.²⁸ Article 9 of the SEA Directive establishes the requirement that when a plan or programme is adopted, a statement must be made explaining how environmental concerns and the results of public consultation were taken into account.²⁹ This ensures that EIA processes are not treated as technical rituals but as accountable systems where decisions are justified to the public. Academic best-practice reviews likewise stress that an effective EIA supports transparent and accountable decision-making, bolstering public confidence in the process.³⁰

A truly ideal EIA also incorporates cumulative impact assessment, recognising that environmental harm often results not from a single large project but from the incremental accumulation of multiple small and medium projects over time. As one U.S. study described it, significant degradation may result from the “tyranny of small decisions” accumulating over years.³¹ For this reason, ignoring cumulative effects risks producing incomplete or misleading assessments. Scholars caution that if projects are evaluated in isolation, important cumulative impacts may be overlooked, leaving conclusions unreliable and undermining credibility.³² The U.S. NEPA framework, particularly through the Council on Environmental Quality regulations (40 C.F.R. §1508.1(i)(3)), requires the consideration of cumulative impacts in Environmental Impact

²⁶European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 1.

²⁷ *ibid.*

²⁸ Arnold, Lauren, and Kevin Hanna. *Best Practices in Environmental Assessment: Case Studies and Application to Mining*. Canadian International Resources and Development Institute, 2017, pp. 5.

²⁹ European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 9.

³⁰ Bond, Alan, et al. "Impact Assessment: Eroding Benefits through Streamlining?" *Environmental Impact Assessment Review*, vol. 45, no. 1, 2014, p. 51.

³¹ Ma, Zhao, Dennis R. Becker, and Michael A. Kilgore. "Assessing Cumulative Impacts within State Environmental Review Frameworks in the United States." *Environmental Impact Assessment Review*, vol. 29, no. 6, 2009, pp. 390-398.

³² *ibid.*, p. 395.

Statements.³³ This emphasises that evaluating cumulative effects is now an expected part of EIA, ensuring that even moderate impacts are not permitted to snowball into significant ecological degradation.³⁴

Finally, the monitoring and follow-up stage is indispensable in an ideal EIA. The SEA Directive stipulated under Article 10 requires that significant environmental effects of implementing a plan be monitored in order to ensure that unforeseen adverse impacts can be identified early and remedied.³⁵ In the project-EIA context, this means putting in place concrete monitoring programmes for key impacts and verifying compliance with mitigation commitments. Accountability continues during implementation: regulators must ensure that proponents carry out the required monitoring and meet conditions of approval, with penalties or corrective action where necessary.³⁶ International best-practice principles on EIA follow-up stress that the proponent is responsible for implementing follow-up, regulators are responsible for enforcement, and affected communities should also be included in post-project monitoring.³⁷

In sum, an ideal EIA is characterised by early public participation, integration into policy and planning, transparency and accountability, cumulative impact assessment, and rigorous follow-up. Anchored in law and informed by international standards, this model represents not just a procedural exercise but a substantive framework for guiding development in a manner that balances economic growth with the protection of environmental and social systems.³⁸

2.2.3. Limitations & Critiques

Despite its global diffusion, Environmental Impact Assessment (EIA) has consistently attracted criticism for its limited effectiveness. Wathern's foundational analysis identified five recurring weaknesses: (i) ineffectiveness in influencing decision-making, (ii) limited environmental

³³ Council on Environmental Quality. *Regulations for Implementing the Procedural Provisions of NEPA*. 40 C.F.R. §1508.1(i)(3). 2020.

³⁴ *ibid.*

³⁵ European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 10.

³⁶ *ibid.*

³⁷ Arnold, Lauren, and Kevin Hanna. *Best Practices in Environmental Assessment: Case Studies and Application to Mining*. Canadian International Resources and Development Institute, 2017, p. 6.

³⁸ Bond, Alan, et al. "Impact Assessment: Eroding Benefits through Streamlining?" *Environmental Impact Assessment Review*, vol. 45, no. 1, 2014, pp. 46-53.

benefits, (iii) inadequate public participation, (iv) excessive cost and delay, and (v) procedural inefficiencies.³⁹ These categories continue to frame debate, but subsequent scholars have added nuance by showing how these weaknesses relate directly to the absence of features that define an “ideal” EIA process.

One major concern is the gap between procedure and substance. Cashmore argues that EIAs have often become exercises in procedural compliance rather than substantive instruments guiding sustainable outcomes, with agencies more concerned about producing legally defensible documents than integrating environmental reasoning into planning.⁴⁰ This critique reflects the failure to embody the forward-looking integration seen in the NEPA §102(2)(C) model, which envisioned the EIA as shaping decisions before they are taken. Instead, as Wathern already noted, EIAs are frequently conducted after critical planning commitments have been made, rendering them retrospective rather than anticipatory.⁴¹ Similarly, the limited environmental benefits of EIA are closely tied to insufficient follow-up and enforcement. Craik highlights this process-substance tension, noting that international and domestic EIAs tend to rely on participatory and informational settings without imposing substantive standards.⁴² In other words, EIAs assume that “good process” will yield “good outcomes,” but evidence suggests otherwise. This contrasts with the vision of the ideal EIA, where vigorous enforcement and continuous monitoring are essential to give effect to mitigation measures.

Public participation, formally embedded in most EIA regimes, is another recurrent weakness. Wood observes that while participation is required in principle, it is often reduced to late-stage consultation, with stakeholders treated as passive recipients rather than co-shapers of assessments.⁴³ Thai practice illustrates this vividly. Studies show that public hearings in Thailand

³⁹ Wathern, Peter, editor. *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, pp. 25-27.

⁴⁰ Cashmore, Matthew. “The Role of Science in Environmental Impact Assessment: Process and Procedure versus Purpose in the Development of Theory.” *Environmental Impact Assessment Review*, vol. 24, no. 4, 2004, pp. 403-426, pp. 404-406.

⁴¹ Wathern, Peter, editor. *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, pp. 25-26.

⁴² Craik, Neil. *The International Law of Environmental Impact Assessment: Process, Substance and Integration*. Cambridge University Press, 2008, p. 3.

⁴³ Wood, Christopher. *Environmental Impact Assessment: A Comparative Review*. 2nd ed., Pearson, 2003, pp. 231-232.

are frequently rushed, inaccessible, or conflict-ridden, resulting in low trust in EIA decisions.⁴⁴ By comparison, the Aarhus Convention and the SEA Directive under Article 6 require early, meaningful, and iterative participation, aligning more closely with the ideal model outlined earlier.⁴⁵

Concerns over cost and delay are also widespread. Wathern recognised these as common criticisms, though subsequent research shows the problem often lies less in the concept of EIA itself than in its poor integration with planning.⁴⁶ When treated as an external bureaucratic hurdle, EIA is perceived as slowing development. Yet, Cashmore stresses that well-structured EIAs can produce long-term savings by preventing costly environmental harm.⁴⁷ The latter view reflects the ideal process, which reframes EIA not as an obstacle but as a preventive investment.

Finally, procedural inefficiencies undermine decision-making quality. In practice, EIAs often become encyclopaedic compilations of data, overwhelming reviewers rather than guiding them.⁴⁸ Wood and later Thai studies note that this defensive style stems from fears of litigation and political contestation, leading to excessively long reports with little analytical clarity.⁴⁹ By contrast, the ideal EIA emphasises scoping, focus, and clarity ensuring relevance over volume and integrating principles of holism and accountability.

A particularly persistent weakness is the systematic under-treatment of cumulative effects. Evaluating projects in isolation fails to detect the additive and synergistic changes that arise when multiple actions interact over time.⁵⁰ This deficiency stands in sharp contrast with the ideal model, which requires structured attention to cumulative, indirect, and reasonably foreseeable effects, supported by guidance and definitional clarity. Under NEPA's implementing regulations, cumulative

⁴⁴Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, p. 39; Krassesen, Kritsadarat, et al. "The Performance of Environmental and Health Impact Assessment Implementation in Thailand." *Sustainability*, vol. 16, no. 3, 2024, p. 2.

⁴⁵ European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 6.

⁴⁶ Wathern, Peter, editor. *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, p. 27.

⁴⁷ Cashmore, Matthew. "The Role of Science in Environmental Impact Assessment: Process and Procedure versus Purpose in the Development of Theory." *Environmental Impact Assessment Review*, vol. 24, no. 4, 2004, p. 409.

⁴⁸ Wathern, Peter, editor. *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, p. 27.

⁴⁹ Bond, Alan, and Thanyathorn Chanchitpricha. "Evolution or Revolution: Reflecting on IA Effectiveness in Thailand." *Environmental Impact Assessment Review*, vol. 79, 2019, pp. 1-11.

⁵⁰ Ma, Zhao, Dennis R. Becker, and Michael A. Kilgore. "Assessing Cumulative Impacts within State Environmental Review Frameworks in the United States." *Environmental Impact Assessment Review*, vol. 29, no. 6, 2009, pp. 390-398.

effects are explicitly within scope, and long-standing federal guidance sets out how to delineate spatial and temporal boundaries and assess interactions with past, present, and future actions.⁵¹ This guidance makes clear that without cumulative analysis, even moderate project-level impacts can aggregate into significant degradation, thereby undermining EIA's credibility.⁵²

Taken together, these critiques underline the divergence between practice and the ideal EIA. Whereas the ideal process is integrated, anticipatory, participatory, and enforceable, real-world EIAs too often remain reactive, procedural, and marginal to core decision-making. This persistent gap has spurred the evolution of complementary instruments, notably SEA and CIA, developed precisely to overcome these limitations. Their role and significance will be explored in the subsequent sections.

2.3 Strategic Environmental Impact Assessment (SEA)

As discussed in Section 2.2, conventional EIA has been widely criticised for its reactive and narrow scope, typically limited to the assessment of individual projects. This project-specific orientation fails to capture broader strategic concerns such as long-term sustainability, spatial development conflicts, and cumulative environmental harm. The conceptual origins of SEA can be traced to the United States, where NEPA of 1969 introduced the requirement to assess the environmental impacts of “major Federal actions significantly affecting the quality of the human environment”.⁵³ Referred to in Section 2.2, NEPA formally established the modern EIA framework, but it also incorporated strategic-level consideration but would later underpin SEA. The Act's broad language encompassed not only individual projects but also national programmes, regulatory initiatives, and policies. This interpretation was reinforced by the D.C Circuit Court in *Scientists' Institute for Public Information v. United States Atomic Energy Commission*, which held that NEPA's environmental statement requirement could apply to complex governmental programmes such as multi-phase research and development initiatives.⁵⁴ Although NEPA did not use the term “SEA”, it laid the jurisprudential foundation for strategic-level environmental assessment.

⁵¹ Council on Environmental Quality. *Regulations for Implementing the Procedural Provisions of NEPA*. 40 C.F.R. §1508.1(g)(3), 2020; Council on Environmental Quality. *Considering Cumulative Effects under the National Environmental Policy Act*. Jan. 1997.

⁵² *ibid.*

⁵³ United States. *National Environmental Policy Act of 1969*. Pub. L. 91-190, 83 Stat. 852, §102(2)(C); codified at 42 U.S.C. §4332(2)(C).

⁵⁴ *Scientists' Institute for Public Information, Inc. v United States Atomic Energy Commission* 481 F.2d 1079, 1086-88 (DC Cir 1973).

In contrast to the United States case-law driven evolution, the European Union codified SEA as a distinct legal process under Directive 2001/42/EC, commonly known as the SEA Directive.⁵⁵ Article 1 of the Directive establishes that its purpose is to ensure "environmental considerations are integrated into the preparation and adoptions of plans and programmes."⁵⁶ Unlike project-based EIA, which evaluates impacts after a development proposal has taken shape, SEA aims to embed environmental considerations earlier like during the formulation of policies, plans, and programmes (PPPs). The Directive applies to a wide range of sectors, including land use, energy, waste, transport, and water management, provided the plan or programme sets the framework for future development consent. Article 3(2) of the SEA Directive establishes a legal obligation to conduct SEA for PPPs likely to have significant environmental effects.⁵⁷ Crucially, this assessment must be carried out before the adoption or submission of the plan to the criticism of EIA (raised in section 2.2) particularly the concern that environmental review often comes too late to influence key planning decisions. This structure gives meaningful effects to the precautionary principle, first introduced in section 2.1 Environmental Principles for Environmental Risk Assessment', which holds that the absence of complete scientific certainty should not justify postponing measures to prevent environmental degradation. By requiring review during the policy-formulation stage, SEA ensures that potential harms are considered early enough for strategic alternatives and preventive action to be viable.⁵⁸ Article 5 of the SEA Directive requires the preparation of an environmental report that identifies and evaluates "the likely significant effects on the environment" of the plan or programme and its "reasonable alternatives", taking into account the scope and objectives of the proposed strategy.⁵⁹ This ensures that decision-makers are informed not just about the preferred course of action, but also about environmentally sound alternatives that might be excluded at the project level. Article 6 of the Directive mandates early and effective consultation with the public and designated environmental authorities.⁶⁰ This procedural safeguard aligns with the public participation principle outlined in Section 2.1, by granting stakeholders access to and influence over environmental decision-making at a formative stage. Rather than treating participation as an afterthought, SEA integrates it into the planning process itself. The SEA process thereby institutionalises the principle of public participation by

⁵⁵ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment [2001] OJ L197/30.

⁵⁶ *ibid*, article 1.

⁵⁷ *ibid*, article 3(2).

⁵⁸ *ibid*.

⁵⁹ *ibid*, article 5.

⁶⁰ *ibid*, article 6.

granting civil society, regulators, and affected communities a meaningful voice in shaping strategic development pathways. This contrasts with many EIA regimes, where consultation often occurs too late to impact core decisions. By embedding participatory mechanisms upstream, SEA fosters procedural fairness and enhances the democratic legitimacy of environmental governance.⁶¹

Internationally, SEA is reinforced by the 2003 Protocol on Strategic Environmental Assessment, which supplements the Espoo Convention on Environmental Impact Assessment in a Transboundary Context.⁶² The Protocol expands the SEA concept to include not only environmental but also health considerations, and it explicitly promotes transparency, cross-border cooperation, and stakeholder engagement. Under Article 3 of the Protocol, Parties are required to conduct SEA for any plan or programme likely to have significant environmental or health effects.⁶³ This reflects a growing international consensus around the importance of strategic-level environmental review. Finally, SEA operationalises the polluter pays principle introduced in Section 2.1 by shifting environmental responsibility upstream in the planning cycle. Instead of allowing environmental costs to be externalised or addressed retroactively, SEA requires that those formulating strategies internalise the environmental consequences of their decisions. This not only enhances accountability but also promotes long-term ecological sustainability by embedding environmental costs into strategic resource allocation.

Despite its normative strengths, SEA's implementation across jurisdictions remains uneven. While the SEA Directive harmonised minimum procedural standards across the EU, its substantive influence on planning decisions varies considerably. In some cases, SEA has become a formalistic requirement with limited real-world impact. In others, it has been integrated effectively into national and regional planning systems, helping to guide policy on land use, infrastructure, and environmental resilience. Moreover, although SEA is legally mandated to consider cumulative and indirect effects, these elements often remain underdeveloped due to data limitations, methodological challenges, or institutional inactivity.

These limitations underscore the growing need for complementary legal mechanisms focused specifically on cumulative environmental harm. While SEA offers a broad strategic framework, it is not designed to quantify or systematically manage the aggregate effects of multiple

⁶¹ *ibid.*

⁶² Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (adopted 21 May 2003, entered into force 11 July 2010) 2685 UNTS 140.

⁶³ *ibid.*, article 3.

developments. For this reason, Cumulative Impact Assessment (CIA) has emerged as a distinct legal tool. CIA and its evolution are explored in the following section.

2.4 Cumulative Impact Assessment

CIA emerged in direct response to one of the most persistent criticisms of traditional EIA: its inability to capture how multiple projects interact over time to produce complex environmental change. While EIA has conventionally focused on site-specific, short-term impacts of individual proposals, CIA shifts the analytical lens to consider how the incremental impacts of numerous developments accumulate spatially and temporally. This wider perspective is particularly important where each project appears acceptable in isolation, yet collectively results in significant environmental degradation, regulatory blind spots, and systemic ecological decline.

Rather than evaluating the environmental consequences of a single proposal, CIA examines how that action interacts with the residual effects of past developments, ongoing pressures, and reasonably foreseeable future projects. It accounts for additive, interactive, or synergistic effects of human activity, including those that transcend project boundaries or jurisdictional limits. This reflects the understanding, long emphasised in ecological literature, that ecosystems do not respond to change in isolated or linear ways. Indirect, delayed, or non-linear effects often escape detection in conventional EIAs, a point that Cashmore underscores in his critique of procedural formalism: EIA has too often become an exercise in producing voluminous documents rather than grappling with dynamic, system-wide risks.⁶⁴ Wathern similarly identified this weakness as a structural limitation of project-based EIA, which, by focusing narrowly on discrete proposals, fails to anticipate cumulative degradation.⁶⁵ Craik adds that such weaknesses stem from the dominance of process over substance in most EIA regimes, where the law ensures procedure but does not guarantee substantive environmental outcomes.⁶⁶

Planning theorists have also pointed to these deficiencies. Lawrence argues that EIA's reliance on rational planning models produces static, linear assessments that overlook evolving

⁶⁴ Cashmore, Matthew. "The Role of Science in Environmental Impact Assessment: Process and Procedure versus Purpose in the Development of Theory." *Environmental Impact Assessment Review*, vol. 24, no. 4, 2004, pp. 403-426, pp. 404-406.

⁶⁵ Wathern, Peter, editor. *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, pp. 25-27.

⁶⁶ Craik, Neil. *The International Law of Environmental Impact Assessment: Process, Substance and Integration*. Cambridge University Press, 2008, p. 3.

social and ecological dynamics.⁶⁷ This makes cumulative impacts particularly difficult to capture, as they unfold over long temporal horizons and involve cross-sectoral interactions. The latter further stresses that reframing assessment through a more adaptive and contextualised planning lens positions CIA as a corrective to these limitations.⁶⁸

The legal foundation for the CIA is most clearly developed in the United States. Under current NEPA implementing regulations, the term “effects or impacts” is defined in 40 C.F.R. §1508.1(i). Direct effects are those that occur at the same time and place as the proposed action (§1508.1(i)(1)).⁶⁹ Indirect effects are reasonably foreseeable but occur later in time or at a greater distance, such as growth-inducing effects or ecosystem shifts (§1508.1(i)(2)).⁷⁰ Cumulative effects result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable actions, regardless of who is responsible (§1508.1(i)(3)).⁷¹ This tripartite structure distinguishes cumulative assessment from project-specific reviews and embeds it as a legally significant category of harm.

The Council on Environmental Quality (CEQ) has further elaborated this in its 1997 guidance, which emphasised that cumulative impacts must be assessed not simply by aggregating data, but by situating projects within overlapping spatial and temporal scales, recognising residual stress, and identifying ecological thresholds. The concept of “environmental context” was introduced to capture whether additional impacts may trigger irreversible damage or systemic change, especially when resilience is already compromised. This holistic orientation aligns with the characteristics of the “ideal” EIA process: early integration, meaningful participation, and continuous follow-up. In practice, however, CIA has often been reduced to a procedural formality. As Wood notes, weak public participation and narrow methodological choices undermine its

⁶⁷ Lawrence, David P. “Planning Theories and Environmental Impact Assessment.” *Environmental Impact Assessment Review*, vol. 20, no. 6, 2000, pp. 607-625, pp. 610-614.

⁶⁸ *ibid.*, p. 620.

⁶⁹ Council on Environmental Quality. *Regulations for Implementing the Procedural Provisions of NEPA*. 40 C.F.R. §1508.1(i)(1), 2020.

⁷⁰ *ibid.*, §1508.1(i)(2).

⁷¹ *ibid.*, §1508.1(i)(3).

transformative potential,⁷² while Thai studies have shown that baseline data gaps and limited institutional capacity make CIA particularly challenging to operationalise.⁷³

Thus, CIA should not be understood merely as an expanded checklist within existing EIA procedures. It represents a necessary evolution in environmental risk assessment, seeking to bridge the gap between isolated project evaluation and ecosystem-scale thinking. By recognising cumulative impacts as a distinct and legally relevant category of harm, CIA compels regulators and decision-makers to confront the broader consequences of development, rather than treating each project as a tabula rasa.⁷⁴

2.5 Significance of SEA and CIA

The emergence of SEA and CIA represents more than procedural refinement; it reflects an evolving legal and institutional recognition that environmental harm is systemic, cross-sectoral, and cumulative in nature. Where conventional EIA is often confined to discrete project assessments, SEA embeds environmental considerations at the upstream level of policies, plans, and programmes, while CIA extends the analytical lens outward to account for the aggregate and interactive effects of multiple developments. Taken together, these instruments signify a shift in environmental governance from reactive compliance toward anticipatory and integrated planning.

The European Union's SEA Directive 2001/42/EC illustrates this development by legally mandating environmental integration at the policy and programme stage. Article 1 sets out its purpose,⁷⁵ Article 3 requires environmental assessment of plans and programmes likely to have significant effects,⁷⁶ and Article 6 embeds early and meaningful participation of the public and environmental authorities.⁷⁷ This framework responds directly to the limitations of conventional EIA identified earlier: rather than producing assessments too late to influence key decisions, SEA

⁷² Wood, Christopher. *Environmental Impact Assessment: A Comparative Review*. 2nd ed., Pearson, 2003, pp. 231-232.

⁷³ Bond, Alan, and Thanyathorn Chanchitpricha. "Evolution or Revolution: Reflecting on IA Effectiveness in Thailand." *Environmental Impact Assessment Review*, vol. 79, 2019, pp. 1-11; Krasaesen, Kritsadarat, et al. "The Performance of Environmental and Health Impact Assessment Implementation in Thailand." *Sustainability*, vol. 16, no. 3, 2024, p. 2.

⁷⁴ Latin term for blank slate.

⁷⁵ European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 1.

⁷⁶ *ibid*, article 3.

⁷⁷ *ibid*, article 6.

requires environmental concerns to be addressed while alternatives remain viable. The Directive therefore operationalises the precautionary principle by ensuring that strategic choices are shaped before path-dependency locks in harmful outcomes.

CIA addresses the complementary weakness, namely, the inability of project-based EIA to capture incremental and synergistic harms across space and time. As noted in the previous section, CIA builds on critiques articulated by Wathern, Cashmore, and Lawrence, who each emphasise the inadequacy of procedural formalism and static planning models for capturing dynamic ecological processes.⁷⁸ By compelling regulators to evaluate cumulative burdens, CIA transforms the legal understanding of environmental damage from isolated incidents into system-wide degradation.

The institutionalisation of SEA and CIA across jurisdictions demonstrates a growing global consensus that environmental assessment must account for both the strategic scale of planning and the systemic accumulation of impacts. Canada's experience offers a striking example.⁷⁹ Under the Impact Assessment Act 2019, cumulative effects are explicitly recognised as a central component of assessment, with particular emphasis on ecological integrity and Indigenous rights.⁸⁰ The landmark case *Yahey v. British Columbia* illustrates how cumulative effects analysis can transcend procedural obligation and assume constitutional significance. The British Columbia Supreme Court held that decades of industrial development had caused widespread ecological degradation that breached Treaty 8 rights of the Blueberry River First Nations.⁸¹ No new approvals could be issued until cumulative impacts were adequately managed, effectively elevating the CIA from a planning tool to a constitutional threshold for government action. Commentary by Kate Gunn highlights how the decision underscores the role of cumulative impacts in safeguarding Indigenous treaty rights,

⁷⁸ Peter Wathern, ed. *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, pp. 25-27; Matthew Cashmore, "The Role of Science in Environmental Impact Assessment: Process and Procedure Versus Purpose and Performance," *Environmental Impact Assessment Review*, vol. 24, no. 4, 2004, pp. 403-426; P. Lawrence, "Planning Theories and Environmental Impact Assessment," *Environmental Impact Assessment Review*, vol. 20, no. 6, 2000, pp. 607-625.

⁷⁹ note: section 22(1) of the Act mandates assessment of the effects that are likely to result from the project in combination with other activities, while Section 63 directs decision-makers to weigh the project's contribution to sustainability.

⁸⁰ Impact Assessment Act, S.C. 2019, c. 28, section 22(1)(c) (Canada); Constitution Act, 1982, being Schedule B to the Canada Act 1982 (U.K.), 1982, c. 11, s. 35 (note: clarifies the rights of the Indigenous peoples of Canada).

⁸¹ *Yahey v. British Columbia*, 2021 BCSC 1287.

framing the judgment as a turning point in aligning environmental assessment with constitutional protections.⁸²

More broadly, the significance of SEA and CIA lies in how they embody the paradigm of sustainability law. As McLeod-Kilmurray observes in her review of *Environmental Law for Sustainability*, meaningful sustainability requires integrating ecological justice, intergenerational equity, and participatory governance into environmental law.⁸³ By treating environmental impacts as layered, interconnected, and rights-bearing, SEA and CIA align with this vision and extend environmental assessment beyond technical compliance toward principles of justice and equity.

For Thailand, this paradigm is highly relevant. Regions such as Phuket, Chiang Mai, and Koh Samui face mounting ecological strain from tourism-driven development. Current reliance on project-based EIA under the Environmental Quality Promotion Act B.E. 2535 (1992) leaves cumulative pressures largely unaddressed, with consequences for both ecosystems and community well-being. Integrating SEA's strategic foresight with CIA's systemic scope would move Thailand's framework closer to an anticipatory model capable of addressing twenty-first-century environmental risks. The following chapter investigates how these comparative insights may inform reforms to Thailand's EIA regime, positioning it to balance economic growth with long-term ecological and social sustainability.

2.6 Concluding Remarks

This chapter clarified the concepts that give environmental assessment its direction and established the criteria against which later analysis will be judged. It explained why clear definitions, foundational environmental principles, and attention to cumulative effects are essential, and it situated EIA alongside SEA and CIA as complementary tools across different decision levels. Comparative illustrations reinforced these points. First, the EU SEA Directive 2001/42/EC shows how environmental reasoning is embedded upstream in plans and programmes. Second, the U.S. NEPA framework, including CEQ guidance, clarifies how cumulative and indirect effects must be

⁸² Kate Gunn, "Time Is of the Essence: Treaty Rights and Cumulative Impacts in *Yahey v. British Columbia*," *First Peoples Law*, 8 July 2021, www.firstpeopleslaw.com/public-education/blog/time-is-of-the-essence-treaty-rights-and-cumulative-impacts-in-yahey-v-british-columbia.

⁸³ Heather McLeod-Kilmurray. "Book Review: *Environmental Law for Sustainability: A Reader*, edited by Benjamin J. Richardson and Stepan Wood." *Supreme Court Law Review: Charter Dialogue Ten Years Later*, vol. 45, 2007, pp. 231-238.

considered within a transparent, participatory process. Lastly, Canadian jurisprudence, notably *Yahey v British Columbia*, shows why cumulative effects cannot be treated as optional; the court found decades of approvals breached Treaty 8 rights and paused new permits until an area-specific framework adequately managed them, effectively elevating CIA to a constitutional safeguard.

Chapter 3 turns to Thailand's EIA system under NEQA 1992 and its 2018 amendment, assessing how screening, scoping, participation, disclosure, decision making, and post-approval monitoring currently perform and where cumulative and long-term effects are missed, so that specific gaps and strengths can be identified for reform.

Chapter 3: The EIA System in Thailand

Environmental governance is judged in the arena of everyday decisions. Thailand's EIA regime stands at the meeting point of national growth and local landscapes, filtering a steady flow of tourism, real estate, and infrastructure proposals that rarely arrive as isolated events. Pressures accumulate over seasons and years, stretching aquifers, reefs, airsheds, and municipal services. In this context, credibility turns on whether institutions can recognise patterns as well as projects, give reasons the public can follow, and translate conditions on paper into outcomes on the ground.

NEQA 1992, as amended in 2018, supplies the legal backbone, but practice is shaped by how its committees, experts, and administrators apply it day to day. The strength of the system rests on clear screening and scoping, independence and competence of assessors, participation that has consequence, and monitoring that verifies performance rather than simply recording it. Tourism-heavy regions like Phuket, Koh Samui, and Chiang Mai make these demands visible whereby many small approvals can amount to large, long-term change when assessment looks only within a fence line.

With that frame, Chapter 3 steps into the working of Thailand's EIA, examining how rules, institutions, and professional practice interact, and considers their ability to see cumulative and long-term effects, to sustain public trust, and to secure compliance.

3.1 Thailand EIA Framework

At the core of Thailand's environmental governance is NEQA (1992). The latter established EIA as a mandatory procedure for designated projects likely to cause significant environmental impacts, with provisions located in sections 46-51.⁸⁴ These required project proponents to prepare an environmental impact assessment report before obtaining permits, and empowered the Office of Environmental Policy and Planning (ONEP) to review and forward such reports to expert committees for consideration. However, NEQA 1992 provided only a procedural framework: it did not define substantive thresholds for "significant impact", nor did it explicitly address cumulative or indirect effects, leaving important gaps in scope.

⁸⁴ Enhancement and Conservation of the National Environmental Quality Act B.E. 2535 (1992), sections 46-51.

The regime was subsequently strengthened through the 2018 amendment (NEQA B.E. 2561), which revised Part 4 on EIA procedures.⁸⁵ The amendment clarified obligations for proponents, codified the role of expert review committees, and introduced requirements for disclosure and participation. Although intended to modernise the system, the amendment largely preserved NEQA's project-based orientation, without introducing a comprehensive mechanism for cumulative impact assessment.

Constitutional developments added another layer of complexity. The 2007 Constitution under Section 67, required projects or activities likely to cause "severe impacts" on communities and natural resources to undergo an Environmental and Health Impact Assessment (EHIA), with mandatory public consultation and independent expert review.⁸⁶ This safeguard elevated EHIA to a constitutional requirement, beyond ordinary legislation. By contrast, the 2017 Constitution, Section 58, maintained the obligation for environmental and health studies and public hearings but omitted any explicit reference to EHIA or to independent review.⁸⁷ Scholars such as Supat Wangwongwatana have noted that this omission weakens safeguards, as NEQA 1992 did not itself contain a direct provision equivalent to Section 67, and the amendment was necessary to align with the constitutional requirement.⁸⁸

Institutionally, the Office of Natural Resources and Environmental Policy and Planning (ONEP), under the Ministry of Natural Resources and Environment (MoNRE), acts as the coordinating body. Pursuant to NEQA, ONEP receives and preliminarily reviews EIA reports before forwarding them to an Expert Review Committee (ERC) appointed by the National Environment Board (NEB). The ERC has a statutory time limit (45 days) to approve or reject reports, and Cabinet-level projects are escalated to the NEB for review and advice to the Cabinet.⁸⁹ The NEB itself, established under Chapter 1 of NEQA 1992 throughout sections 12-21, operates as the highest policy-making authority in environmental governance, chaired by the Prime Minister and comprising both ex officio officials and appointed experts.⁹⁰

⁸⁵ Office of Natural Resources and Environmental Policy and Planning (ONEP), *Environmental Impact Assessment in Thailand*, 4th ed., September 2021, p. 9.

⁸⁶ Constitution of the Kingdom of Thailand B.E. 2550 (2007), section 67.

⁸⁷ Constitution of the Kingdom of Thailand B.E. 2560 (2017), section 58.

⁸⁸ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp. 56-57.

⁸⁹ Enhancement and Conservation of the National Environmental Quality Act B.E. 2535 (1992), sections 48-49.

⁹⁰ *ibid*, sections 12-21.

Procedurally, EIAs must contain baseline environmental data, predicted impacts, alternatives, mitigation and monitoring measures, and evidence of public participation.⁹¹ Participation is required at least twice under Thai law⁹², and in EHIA cases the law provides additional safeguards, requiring independent review and hearings before approval.⁹³ In practice, however, public participation has frequently been criticised as superficial, poorly advertised, or inaccessible to local communities due to technical language.⁹⁴

Thus, while Thailand's framework combines legislative foundations such as NEQA 1992 and its 2018 amendment), constitutional recognition (2007 and 2017), and institutional structures (ONEP, NEB, ERC), its overall orientation remains narrow and procedural. The absence of explicit cumulative impact provisions, the weakening of constitutional EHIA safeguards in 2017, and persistent concerns about participation and enforcement illustrate how the system continues to fall short of an "ideal" EIA model.

Despite its maturity, the Thai EIA system faces persistent implementation challenges. Scholars identify recurring problems including: (i) project screening gaps, where outdated ministerial lists allow certain developments to escape EIA requirements. Supat Wangwongwatana notes that the absence of regular updates leaves loopholes that undermine the system's comprehensiveness, a concern echoed by Bond and Chanchitpricha, who highlight weaknesses in Thailand's screening process as symptomatic of broader inefficiencies.⁹⁵ (ii) Weak enforcement and monitoring, with limited institutional capacity in permitting agencies and ONEP to oversee compliance. Supat emphasises that monitoring mechanisms are fragmented and under-resourced, while Neil Craik similarly observes that enforcement deficits are a common weakness in EIA

⁹¹ Office of Natural Resources and Environmental Policy and Planning (ONEP), *Environmental Impact Assessment in Thailand*, 4th ed., September 2021, pp. 7-9.

⁹² Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 4.

⁹³ Constitution of the Kingdom of Thailand B.E. 2550 (2007), Section 67; Constitution of the Kingdom of Thailand B.E. 2560 (2017), Section 58; Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 57.

⁹⁴ Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, p. 143.

⁹⁵ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 33; Alan Bond and Thanyathorn Chanchitpricha, "Evolution or Revolution: Reflecting on IA Effectiveness in Thailand." *Environmental Impact Assessment Review*, vol. 79, 2019, pp. 1-11.

regimes worldwide.⁹⁶ (iii) Quality concerns in EIA reports, since consultants are often hired directly by developers, creating conflicts of interest. Supat underscores that this arrangement compromises independence and results in poor-quality reports, a critique supported by Krasaesen et al. in their evaluation of EIA and EHIA implementation in Thailand.⁹⁷ (iv) Public distrust, as hearings are often poorly advertised, rushed, or dominated by technical jargon inaccessible to communities. Supat highlights this problem in detail, while Chutarat Chompunth stresses that such tokenistic participation undermines community confidence and turns hearings into a formality rather than a genuine dialogue.⁹⁸

These domestic critiques resonate with international scholarship. Wathern's foundational analysis and Cashmore's concern with procedural formalism highlight how EIAs often produce documentation without substantively influencing decision-making.⁹⁹ Lawrence's critique of rational planning models helps explain why Thai EIAs, though procedurally adequate, often fail to capture evolving social and ecological contexts, while Craik's work on international law underscores the dominance of process over substance.¹⁰⁰ The parallels between Thai and global limitations suggest that Thailand's EIA challenges are not isolated but form part of a broader structural weakness in project-based assessment.

There are case studies found to highlight these weaknesses. For example, the Map Ta Phut Industrial Estate in Rayong, one of Thailand's largest petrochemical complexes, saw widespread public health impacts from cumulative air pollution. The Administrative Court intervened, requiring

⁹⁶ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 34; Neil Craik, *The International Law of Environmental Impact Assessment: Process, Substance and Integration*. Cambridge University Press, 2008, p. 3.

⁹⁷ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 35; Kritsadarat Krasaesen, et al., "The Performance of Environmental and Health Impact Assessment Implementation in Thailand." *Sustainability*, vol. 16, no. 3, 2024, p. 2.

⁹⁸ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 36; Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 43-46.

⁹⁹ Peter Wathern, ed., *Environmental Impact Assessment: Theory and Practice*. Routledge, 1988, pp. 25-27; Matthew Cashmore, "The Role of Science in Environmental Impact Assessment: Process and Procedure Versus Purpose and Performance." *Environmental Impact Assessment Review*, vol. 24, no. 4, 2004, pp. 404-406.

¹⁰⁰ David P. Lawrence, "Planning Theories and Environmental Impact Assessment." *Environmental Impact Assessment Review*, vol. 20, no. 6, 2000, pp. 607-625, at pp. 610-614; Neil Craik, *The International Law of Environmental Impact Assessment*. Cambridge University Press, 2008, p. 3.

EHIA for further projects and declaring the area a ‘Pollution Control Zone’.¹⁰¹ Similar controversies surrounded the Mae Moh Lignite power plant and hazardous waste facilities in Saraburi, where EIAs were criticised for underestimating health impacts and failing to build public trust.¹⁰²

Academic evaluations reinforce these concerns. Firstly, it was found that while EIAs/EHIAs in Eastern Thailand scored “satisfactory” procedurally, they lagged substantively, with limited influence on final project design and inadequate public involvement.¹⁰³ Other evaluations have also documented systematic barriers to meaningful participation, including insufficient notice, lack of accessible information, and mistrust in government decisions.¹⁰⁴

Hence, while Thailand’s EIA framework under NEQA provides a robust formal structure, its effectiveness remains constrained by gaps in enforcement, participation, and substantive influence on decision-making. These limitations are particularly acute in tourism-heavy regions, where multiple smaller projects accumulate impacts not fully captured by project-by-project assessment. This issue will be returned to in later sections.

3.2 EIA Process in Practice

The Thai EIA and EHIA systems operate through a series of legally defined steps intended to incorporate environmental and health considerations into development planning. These steps (screening, scoping, report preparation, review, public participation, monitoring) are designed to provide checks and balances before projects are approved. While the structure appears comprehensive, its implementation in practice has exposed recurring weaknesses that limit its effectiveness, particularly in capturing the cumulative impacts of tourism-related development.

3.2.1. Screening

¹⁰¹ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 5.

¹⁰² *ibid* pp. 48-52.

¹⁰³ Pattajaree Krasaesen and others, ‘The Performance of EIA and EHIA Implementation in Eastern Thailand’ (2024) 21 *Int J Environ Res Public Health*, pp. 10-11.

¹⁰⁴ Chompunth, Chutarat. “Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai).” *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 47-48.

As previously mentioned, screening determines which project must undergo EIA or EHIA. Under ministerial notifications, 35 categories of projects require EIA and 11 categories require EHIA¹⁰⁵, while additional requirements apply in designated ‘Environmentally Protected Areas’ (EPAs), including Phuket, Krabi, and Surat Thani.¹⁰⁶ These provisions ensure that large-scale industrial and infrastructure projects are reviewed. However, many small and medium-sized tourism projects such as boutique resorts, restaurants, and entertainment facilities fall below the thresholds.¹⁰⁷ This exclusion is significant because cumulative environmental pressures in tourism regions often arise from the proliferation of numerous smaller developments rather than a handful of mega-projects. The reliance on rigid project lists and thresholds creates a blind spot in addressing the environmental footprint of the tourism sector.

3.2.2. Scoping

The scoping stage is intended to define the Terms of Reference (ToR) for an EIA or EHIA, specifying baseline studies, predicted impacts, alternatives, and mitigation measures. According to official guidelines, scoping must cover four broad domains: (i) physical resources, (ii) biological resources, (iii) human use values, and (iv) quality of life.¹⁰⁸ While this framework is comprehensive, in practice scoping is typically controlled by developers and their consultants, with limited space for local communities to shape the agenda. Evaluations indicate that scoping exercises rarely address cumulative impact across multiple projects, and often narrow their focus to the immediate project footprint.¹⁰⁹ This undermines the very purpose of scoping, which should ensure that assessments are directed towards the most pressing environmental risks.

3.2.3. Preparations of EIA/EHIA Reports

¹⁰⁵ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p.78; Chompunth, Chutarat. “Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai).” *NIDA Development Journal*, vol. 60, no. 1-2, 2020, p. 47.

¹⁰⁶ Office of Natural Resources and Environmental Policy and Planning (ONEP), *Environmental Impact Assessment in Thailand*, 4th ed., September 2021, p.41.

¹⁰⁷ *ibid*, pp. 31-32.

¹⁰⁸ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 79.

¹⁰⁹ Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, ‘The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand’ (2024) 21 *International Journal of Environmental Research and Public Health* pp. 7-8.

EIA and EHIA reports must be prepared by consultants registered with the ONEP.¹¹⁰ In principle, this safeguard ensures technical expertise. However, because consultants are directly hired by project proponents, the process is marked by conflicts of interest. Consultants often prioritise satisfying developer expectations, producing reports that formally comply with guidelines but lack substantive rigour. Evaluations of EIA reports in Eastern Thailand found that while many satisfied procedural checklists, they often provided inadequate baseline data, superficial alternatives analysis, and generic mitigation measures.¹¹¹ In some cases, baseline information was repeated across multiple projects, leading to criticism of “cut-and-paste” reporting. These shortcomings are particularly damaging in tourism contexts, where site-specific issues such as groundwater availability in Koh Samui or reef health in Phuket require detailed, localised analysis.

3.2.4. Review and Approval

Once submitted, EIA/EHIA are reviewed in two main pathways. For ordinary EIA projects, the proponent first submits the report to the ONEP. The latter is responsible for conducting a preliminary check within 15 days to ensure completeness and afterwards prepares its comments within 30 days. The report is subsequently forwarded to an ERC, which is required to reach a decision within 45 days. It is important to note that if no decision is reached within that timeframe, the report is automatically deemed approved.¹¹² However, where a report is rejected, the developer has the opportunity to revise and submit it, and the ERC must then complete its review of the revised report within 30 days. On the other hand, in the case of Cabinet-level projects, the process is lengthier and involves additional oversight. After ONEP’s review and the ERC’s comments, the report is forwarded to the National Environment Board (NEB) who then examines the report and issues its recommendations to the Cabinet. At this stage, the NEB is ultimately responsible for the final decision.¹¹³

¹¹⁰ Enhancement and Conservation of the National Environmental Quality Act (No.2) B.E. 2561 (2018), sections 46-49.

¹¹¹ Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, ‘The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand’ (2024) 21 *International Journal of Environmental Research and Public Health* pp. 8-9.

¹¹² Enhancement and Conservation of the National Environmental Quality Act (No.2) B.E. 2561 (2018), section 51; Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp.14-15.

¹¹³ *ibid*, pp.15-16.

For EHIA cases, the process includes additional safeguards whereby the report must undergo independent review by an accredited organisation on environment and health, and multiple rounds of public hearings are required.¹¹⁴ While these procedures appear rigorous, practice reveals important flaws. Strict timelines, particularly the 45-day deadline for ERC review, have created pressure for rapid approvals. Scholars and practitioners have warned that this risks superficial review focused on procedural compliance rather than substantive scrutiny.¹¹⁵

3.2.5. Public Participation

Public participation is a fundamental aspect of Thailand's EIA/EHIA system, mandated by NEQA and reinforced by the 2007 Constitution (Section 67) and 2017 Constitution (Section 58). Following the 2009 regulatory revision issued under NEQA 1992 by ONEP, project proponents are required to organise at least two hearings: one during the scoping stage and another after baseline studies, so that affected communities can provide input.¹¹⁶

In reality, participation has frequently been criticised as tokenistic and ineffective. Hearings are often poorly advertised, conducted in technical language, and limited to short sessions that leave little time for meaningful debate.¹¹⁷ Chutarat Chompunth's studies of EHIA hearings in Rayong and Krabi show that communities often lacked access to project documentation in advance, undermining their ability to engage.¹¹⁸ In several cases, hearings sparked conflict, as residents perceived the process as symbolic rather than substantive. In addition to this, Pattajaree Krassesen evaluation of projects in Eastern Thailand similarly found that participation was among the weakest dimension of EIA practice, with communities feeling that their concerns were rarely integrated into the decision-making process.¹¹⁹ In regards to tourism-heavy areas, this failure is particularly

¹¹⁴ *ibid*, pp. 19-21.

¹¹⁵ *Ibid*, pp. 22-23.

¹¹⁶ Alain Kilajian and Pisit Chareonsudjai, "Conflict Resolution and Community Engagement in Post-audit EIA Environmental Management: Lessons Learned from a Mining Community in Thailand," *Environmental Challenges*, vol. 5, 2021, p.8

¹¹⁷ Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, pp. 141-143.

¹¹⁸ Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 43-46.

¹¹⁹ Pattajaree Krasesen, Parichart Visvanathan, Supaporn Phongpaichit and others, 'The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand' (2024) 21 *International Journal of Environmental Research and Public Health*, p. 12.

damaging as residents in Phuket or Koh Samui who raised concerns about reef degradation or water shortages saw these dismissed as outside the scope of single-project EIAs.

Taken together, these findings reveal that although Thailand's EIA framework formally mandates public participation, its implementation remains deeply constrained by procedural and structural weaknesses. Hearings are organised too late in the assessment process, communities are excluded by technical language and limited access to documentation, and the input that is collected is rarely integrated into final decisions. As discussed in Section 2.2.2 on the characteristics of an ideal EIA, genuine participation requires early involvement, transparency, and demonstrable influence on decision-making. By contrast, Thailand's practice reduces participation to a procedural obligation, leaving stakeholders with little confidence that their views matter. Rather than building trust, these shortcomings reinforce perceptions of exclusion and, in some cases, fuel open conflict. In tourism-heavy regions, where ecological limits are already under strain, the absence of meaningful participation prevents the system from harnessing local knowledge and undermines the very purpose of EIA as a safeguard for both communities and ecosystems.

3.2.6. Monitoring and Enforcement

Once the project is approved, proponents are legally required to submit biannual monitoring reports demonstrating compliance with mitigation and monitoring plans.¹²⁰ These conditions become binding elements of project permits. In theory, this stage ensures that commitments made during the EIA are implemented.

In practice, however, monitoring and enforcement remain the weakest link in the Thai EIA/EHIA system. Enforcement agencies often lack the capacity and resources to verify reports, and compliance depends heavily on developer self-reporting.¹²¹ Transparency is limited, as monitoring results are rarely disclosed to the public.¹²² Evaluations have identified monitoring data

¹²⁰ Enhancement and Conservation of the National Environmental Quality Act (No.2) B.E. 2561 (2018), section 51/5; Office of Natural Resources and Environmental Policy and Planning (ONEP), *Environmental Impact Assessment in Thailand*, 4th ed., September 2021, p.15.

¹²¹ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp. 34-35.

¹²² *ibid*, p. 35.

as one of the least reliable components of the system.¹²³ In Phuket, hotels and resorts have discharged untreated wastewater directly into the sea, contributing to coastal water quality decline and coral reef damage.¹²⁴ In Koh Samui, widespread resort development has led to chronic groundwater over-extraction, often unchecked by regulators.¹²⁵ These examples underscore how weak monitoring enables systematic non-compliance, allowing cumulative impacts to escalate despite formal legal safeguards.

Taken together, Sections 3.2.1-3.2.6 demonstrate that while Thailand's EIA and EHIA processes are comprehensive in design, their implementation is marked by recurring weaknesses across screening, scoping, report preparation, review, participation, and monitoring. These stage-specific problems reveal why the framework often struggles to influence development outcomes substantively, particularly in tourism-heavy regions. It is important, however, to distinguish these practice-based shortcomings from the broader structural limitations of the Thai EIA framework itself. The following section therefore shifts the analysis to these systemic limitations, providing a more rigorous evaluation of how the framework is constrained by design features, institutional arrangements, and legal provisions.

3.3 Limitations in Thailand's EIA framework

Although Thailand's EIA and EHIA procedures are detailed in law, their operation in practice reveals systemic flaws. These weaknesses are not isolated defects at specific stages of the process but are structural shortcomings that consistently undermine the effectiveness of the system. In regions heavily reliant on tourism, such as Phuket, Koh Samui, and Chiang Mai, these flaws have been particularly damaging because they prevent the recognition and mitigation of cumulative environmental impacts.

3.3.1. Project-based orientation and absence of cumulative assessment

¹²³ Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, 'The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand' (2024) 21 *International Journal of Environmental Research and Public Health*, pp.10-12.

¹²⁴ Niphon Snidvongs, 'Cumulative Impacts of Tourism Development on Coastal Ecosystems in Thailand' (United Nations Environment Programme Regional Seas Reports and Studies, 2011) pp. 15-18.

¹²⁵ Asian Development Bank (ADB), *Thailand: Country Environmental Analysis* (ADB 2019) pp.112-113.

As noted in section 3.2.1 on screening, Thailand's EIA framework is structured around individual projects. Assessments are carried out in isolation, without mechanisms to address the combined or synergistic effects of multiple developments.¹²⁶ Neither NEQA nor ministerial notifications impose a legal obligation to conduct cumulative impact assessment. This limitation means that even where individual resorts or infrastructure projects appear environmentally manageable, the combined burden of many such projects remains unexamined.

The consequences are most visible in tourism regions. In Phuket, coral reef decline and coastal erosion result from the aggregate effect of numerous resorts, marinas, and roads. In Koh Samui, groundwater shortages stem from widespread development, none of which individually meets the threshold for EHIA. Without a framework for cumulative assessment, these region-wide challenges are invisible to regulators.

3.3.2. Thresholds that exempt tourism development

Section 3.2.1 also highlighted that threshold-based screening systematically excludes many small and medium-sized tourism developments.¹²⁷ Ministerial notifications require EIA/EHIA only for listed project types and sizes. While this captures major infrastructure or industrial activities, it allows most boutique hotels, entertainment venues, and dive operations to proceed without review.¹²⁸ In practice, this loophole is a critical weakness. The most severe pressures on tourism destinations often come not from single mega-projects but from the accumulation of smaller ventures. In Koh Samui, proliferating resorts strain freshwater sources whereas in Chiang Mai, unchecked expansion of hotels contributes to congestion and waste. Because these projects evade EIA scrutiny, their collective impact escapes environmental governance altogether.

3.3.3. Weak enforcement and political influence

Section 3.2.6 described how power-approval monitoring is inconsistently enforced. Here, it must be emphasised that this is not simply a technical lapse but a systemic weakness that

¹²⁶ Niphon Snidvongs, 'Cumulative Impacts of Tourism Development on Coastal Ecosystems in Thailand' (United Nations Environment Programme Regional Seas Reports and Studies, 2011) pp. 15-18.

¹²⁷ Office of Natural Resources and Environmental Policy and Planning (ONEP), *Environmental Impact Assessment in Thailand* (ONEP 2021) pp. 24-35.

¹²⁸ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 33.

undermines the credibility of the entire EIA framework. Although developers are legally required to comply with mitigation measures, in practice compliance is rarely verified. Enforcement agencies often lack the resources to inspect sites or validate monitoring reports, leading to reliance on self-reporting by developers.¹²⁹

Political influence further compounds this weakness. Projects with strong economic or political backing are frequently approved despite evident environmental concerns. The Map Ta Phut Industrial Estate case is the most prominent example, where courts had to intervene to uphold conditional rights after state priorities for industrial growth overrode environmental safeguards.¹³⁰ In the tourism sector, similar dynamics occur at local level where provincial officials are often reluctant to oppose projects that promise revenue and jobs, when communities raise concerns about environmental damage. The result is a system where legal safeguards exist in theory but can be circumvented in practice.

3.3.4. Public participation as symbolic practice

While section 3.2.5 explained the legal design of public participation whereby requiring at least two hearings, in practice however, this stage is widely recognised as one of the weakest components of the Thai EIA/EHIA framework.

a) Stakeholder inclusion

Hearings are often dominated by officials, consultants, and project proponents, while local communities, Non-governmental organisations (NGOs), and vulnerable groups are marginalised.¹³¹ Meetings are frequently held in provincial centres rather than affected villages, making them inaccessible to those mostly directly impacted.¹³² Even when residents do attend, presentations are delivered in highly technical language, limiting their ability to engage.¹³³

¹²⁹ibid. 34-35.

¹³⁰ibid, 38-41.

¹³¹Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, pp. 141-143.

¹³² Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 43-44.

¹³³ ibid pp. 45-46.

b) Timing & Influence

Participation usually takes place after the ToR has been set and reports substantially drafted, leaving communities little chance to shape the scope of studies or propose alternatives.¹³⁴ This reduces their role to reactive commenting, rather than co-shaping the assessment.

c) Integration of concerns

Studies show that even when communities raise objections (e.g. concerns about water scarcity or reef degradation), their input is rarely reflected in final reports.¹³⁵ Krasaesen's evaluation of projects in Eastern Thailand found that local residents consistently doubted whether their contribution influenced decisions.¹³⁶ Similarly, Chutarat Chompunth highlights that when participation is initiated too late, it often escalates conflict rather than resolving it. As one key informant remarked: "*In the Thai's experience, we hardly found a successful public participation... when people's voices were not heard, they started to oppose the project. Public hearings could easily lead to confrontation among stakeholders... the public hearing might not suitable with the Thai context.*".¹³⁷

d) Conflict and mistrust

Far from fostering legitimacy, flawed participation has provoked conflict. In Rayong and Krabi, poorly managed hearings escalated into protests and litigation, with participants perceiving the process as a procedural formality rather than genuine dialogue.¹³⁸ Chutarat Chompunth further observes that in Thailand, public participation practices, particularly public hearings, have frequently intensified conflict among stakeholders, sometimes ending in violence. Case studies such as the Hin Krut and Bo Nok power plants, the Thai-Malaysia gas pipeline project, and the Krabi coal-fired power plant illustrate how hearings became arenas of confrontation between supporter

¹³⁴Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, p. 142.

¹³⁵ Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 47-48.

¹³⁶ Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, 'The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand' (2024) 21 *International Journal of Environmental Research and Public Health*, p. 12.

¹³⁷Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, p.143.

¹³⁸ibid; Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019),p. 38.

groups and opponents with diverging views, highlighting the incapacity of current mechanisms to resolve disputes.¹³⁹

In tourism-heavy regions, these weaknesses are especially harmful. Fishermen in Phuket observe reef decline, residents in Koh Samui struggle with water shortages, and communities in Chiang Mai experience worsening air pollution during the burning season. Yet because hearings are narrowly framed around individual projects, these cumulative insights are excluded. Participation, while constitutionally entrenched, therefore reinforces the project-based limitations of the EIA system instead of correcting them.

3.3.5. *Lack of effective Post-EIA Monitoring*

The issue of weak monitoring, already noted in section 3.2.6, deserves fuller treatment here as one of the most entrenched limitations. Under NEQA, developers must submit biannual monitoring reports, but these are rarely subjected to independent verification, and their results are seldom made public.¹⁴⁰ This opacity prevents communities from holding developers accountable and undermines trust in environmental governance.

The consequences are evident in tourism destinations. In Phuket, untreated wastewater from hotels has continued to flow into the sea despite formal monitoring requirements, contributing to coral reef decline.¹⁴¹ In Koh Samui, over-extraction of groundwater has proceeded unchecked even as shortages became acute.¹⁴² In Chiang Mai, weak monitoring of tourism-related traffic and agricultural burning has failed to mitigate seasonal haze. The failure of post-EIA monitoring allows environmental safeguards to exist only on paper, while cumulative stresses intensify in practice.

Having identified the structural limitations of NEQA's project-based design, the next section outlined Thailand's decentralisation framework to clarify what local governments can do, and why these mandates have not yet resolved the deficits identified above.

¹³⁹ Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, p. 42.

¹⁴⁰ Enhancement and Conservation of the National Environmental Quality Act (No.2) B.E. 2561 (2018), s 51/5; Office of Natural Resources and Environmental Policy and Planning (ONEP), *Environmental Impact Assessment in Thailand*, 4th ed., September 2021, p.15.

¹⁴¹ Nippon Snidvongs, 'Cumulative Impacts of Tourism Development on Coastal Ecosystems in Thailand' (United Nations Environment Programme Regional Seas Reports and Studies, 2011) pp. 16-17

¹⁴² Asian Development Bank (ADB), *Thailand: Country Environmental Analysis* (ADB 2019) pp. 112-113.

3.4 Thailand's Decentralisation Act 1999

Thailand's Determining Plans and Process of Decentralisation to Local Government Organisation Act B.E. 2542 (1999) operationalises constitutional decentralisation by: (i) creating a national decentralisation commission, (ii) requiring a gazetted decentralisation plan and a separate implementation plan, and (iii) phasing transfers of functions and resources to local governments on a set timetable. While the Act does not amend NEQA or relocate formal EIA powers, it assigns substantive environmental, planning and participation functions to local authorities and provides fiscal tools to execute them.¹⁴³

3.4.1. Local functions relevant to the environment and tourism

At municipal and sub-district level, Section 16 empowers municipalities and Subdistrict Administrative Organisations (SOAs) to plan and deliver services that are directly relevant to environmental governance. These include: sanitation and public health; solid waste and wastewater management; local roads and drainage; urban planning and public works; disaster prevention and public safety; management and use of forests, land, natural resources and the environment; tourism promotion; and promotion of public participation and democracy. These mandates place local bodies closest to the cumulative pressures that characterise tourism regions, such as shorelines construction, groundwater extraction, and wastewater discharge. At provincial tier, Section 17(5) assigns Provincial Administrative Organizations (POAs) a coordinating role to protect, supervise, and maintain forests, land, natural resources, and the environment across multiple municipalities and SAOs. This is useful where impacts cross local boundaries, for example in watersheds, airsheds, and coastal zones.¹⁴⁴

3.4.2. Fiscal levers

Section 29 authorises the Commission to set by Gazette notice the criteria, methods, conditions, allocation rates, remittance and receipt of local revenues. Local governments may authorise other agencies to collect revenues on their behalf. This sits alongside revenue-share targets for local governments and the requirements that allocations track transferred missions and

¹⁴³ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), sections 6, 30-34.

¹⁴⁴ *ibid*, sections 16, 17(5).

local readiness, including revenue base, staffing, and service quality. In practical terms, these levers can fund local monitoring networks, laboratory testing, data systems, and participation platforms that EIA practice often lacks.¹⁴⁵

3.4.3. *Interaction with NEQA's EIA*

The Decentralisation Act does not transfer control over EIA scoping, project lists, or approvals. Screening remains tied to ministerial notifications under NEQA¹⁴⁶ and review remains with ONEP, expert committees, and the NEB.¹⁴⁷ The Act nevertheless creates concrete entry points at each of the EIA and EHIA cycle:¹⁴⁸ (i) *ex ante*, in which local land-use plans, baseline inventories, and constraints inform screening and scoping¹⁴⁹; (ii) during assessment, community knowledge and local datasets are used to strengthen ToR and the analysis of alternatives¹⁵⁰; and (iii) post-approval, through local permits and by-laws on wastewater, setback, operating hours, nuisance, and safety, mitigation and monitoring commitments are translated into enforceable local controls.¹⁵¹ Furthermore, it also supports area-based coordination at PAO level when cumulative effects spill across jurisdictions.¹⁵²

3.4.4. *Why decentralisation has not fixed the deficits identified in section 3.3*

(i) Project-based orientation and absence of cumulative assessment under section 3.3.1

NEQA contains no binding duty to conduct cumulative impact assessments and there are no general statutory requirements for SEA. Local governments cannot compel CIA or SEA under the Decentralisation Act, so cumulative effects remain largely indivisible in formal approvals.

(ii) Thresholds that exempt tourism development under section 3.3.2

¹⁴⁵ *ibid*, section 29.

¹⁴⁶ Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992), section 46.

¹⁴⁷ *ibid*, sections 12-21, 46-51.

¹⁴⁸ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), sections 16, 17(5).

¹⁴⁹ *ibid*, section 16.

¹⁵⁰ *ibid*.

¹⁵¹ *ibid*.

¹⁵² *ibid*, section 17(5).

EIA and EHIA coverage depends on national project lists and size thresholds set by ministerial notification.¹⁵³ However, local governments cannot expand those lists. Even active local planning cannot force small or medium tourism projects into EIA unless central notifications change.

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(iii) Weak enforcements and political influence under section 3.3.3

Post-approval compliance is anchored in NEQA conditions and reporting. Even though Local governments can support inspections and use by-laws, they do not control the core sanctioning powers tied to EIA approvals, and local political economic pressures can dilute enforcement.¹⁵⁵

(iv) Public participation as symbolic practice under section 3.3.4

Section 16 includes a mandate to promote participation, yet the design and timing of EIA hearings are prescribed at national level.¹⁵⁶ Local authorities often facilitate meetings without authority to reshape scoping agendas or require early, iterative engagement; accordingly, the participation deficits identified in section 3.3.4 persist.

(v) Lack of effective post-EIA monitoring under section 3.3.5

Developers submit monitoring reports under NEQA. Local governments can build monitoring capacity with Section 29 funding and adopt operating controls, but again, there is no statutory obligation for public disclosure of monitoring data at the local level, nor a unified system that automatically links local permitting to EIA non-compliance.¹⁵⁷

¹⁵³ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 33.

¹⁵⁴ Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992), section 46; Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), sections 16, 17(5).

¹⁵⁵ Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992), section 46-51; Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), sections 16, 17(5); Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, p. 48

¹⁵⁶ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), section 16.

¹⁵⁷ *ibid*, section 29.

3.4.5. Implications for tourism regions

The Act does equip local bodies to gather better data, convene participation earlier, and even hard-link local permits to EIA conditions. It does not, however, alter national screening lists, require CIA/SEAm or shift approval authority. Hence, the structural gaps remain. Because these mandates enhance implementation capacity but not legal authority over EIA decisions, the following case studies illustrate how the resulting gaps play out on the ground.

3.5 Case examples from heavy tourism regions

Tourism is one of Thailand's most important economic sectors, contributing significantly to GDP, employment, and foreign exchange. Yet the very success of tourism has created acute environmental pressures in key destinations. The paradox is clear: tourism fuels local economics while also causing the environmental degradation that endangers them. This dynamic creates a conflicting policy space. On the one hand, there is pressure to approve new resorts, condominiums, and supporting infrastructure in order to attract foreign visitors and capital. On the other hand, there is growing recognition that unchecked development erodes the very natural and cultural assets such as coral reefs, beaches, clean air, and heritage sites on which tourism depends. Recent initiatives in places such as Phuket, Koh Samui, including carbon-neutrality pledges and stricter eco-tourism guidelines, reflect an effort to reconcile these competing imperatives. But the fact that such initiatives are emerging outside or alongside the EIA framework underscores the inadequacy of the existing project-based system in addressing cumulative impacts.

Against this background, the limitations of Thailand's EIA/EHIA system become visible in practice. In Phuket, Koh Samui, and Chiang Mai, the accumulation of multiple tourism projects has produced serious environmental harm including coastal erosion, freshwater shortages, reef damage, and air pollution that was never adequately captured by individual EIAs. Each of these regions demonstrates how Thailand's reliance on a project-by-project assessment model, combined with weak enforcement and symbolic participation, has failed to prevent cumulative degradation.

3.5.1. Phuket

Phuket, Thailand's premier tourist destination, exemplifies how cumulative environmental degradation emerges despite decades of EIA regulation. Its environmental challenges such as

coastal erosion, a mounting waste crisis, and marine pollution cannot be attributed to single projects but to the structural weaknesses of the Thai EIA system. As Thai scholars such as Pattajaree Krasaesen, Chaunjit Chanchitpricha, and Chutarat Chompunth highlight, Thailand's EIA remains narrowly project-focused, weak in monitoring, and lacking in stakeholder trust.¹⁵⁸ These flaws explain why, even with EIAs on record, Phuket continues to experience environmental decline that threatens its tourism economy.

Phuket's coastlines are visibly retreating. A study of 33 sandy beaches using remote sensing found that eight sites were undergoing erosion, with annual shoreline changes of between -4.10 and +5.47 meters.¹⁵⁹ Another study has linked this trend to the rapid expansion of built-up areas after 2009, showing how intensified near-shore development accelerated coastal erosion across popular beaches such as Patong and Karon, which have narrowed significantly and lost recreational space.¹⁶⁰ Even when larger projects undergo review, Chutarat Chompunth highlights that scoping is dominated by developers, leaving little space for local stakeholders to demand studies of cumulative shoreline change.¹⁶¹ The absence of public influence means erosion is assessed piecemeal, project by project, instead of holistically. This disconnect erodes trust when residents see beaches visibly disappearing but EIA reports claim "no significant impact", they conclude that the system is irrelevant to their lived reality. That lack of confidence weakens public support for coastal management, leaving Phuket with fragmented interventions and worsening erosion.

¹⁵⁸ Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, 'The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand' (2024) 21 *International Journal of Environmental Research and Public Health* 644, 10-12; Chaunjit Chanchitpricha and Alan J. Bond, 'Evolution or Revolution? Reflecting on IA Effectiveness in Thailand' (2020) 38(2) *Impact Assessment and Project Appraisal*, pp. 161-163; Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, pp. 141-143.

¹⁵⁹Nidhinarangkoon, P., S. Ritphring, K. Kino, and T. Oki. "Shoreline Changes from Erosion and Sea Level Rise with Coastal Management in Phuket, Thailand." *Journal of Marine Science and Engineering*, vol. 11, no. 5, 2023, p. 2

¹⁶⁰Suwanprasit, Chanida. "Effects of Near Shore Land-Use Dynamic on Coastal Erosion in Phuket, Thailand." *IGARSS 2015 - 2015 IEEE International Geoscience and Remote Sensing Symposium*, July 2015, p. 4832.

¹⁶¹Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, p. 142.

Phuket also faces an acute waste management crisis. The island produces more than 1,000 tonnes of solid waste daily, with projections reaching 1,400 tonnes.¹⁶² Existing incinerators cannot cope, forcing waste into landfills where leachate pollutes groundwater. Earth5R calculates per capita waste at 1.13kg per day, dominated by plastic like bags, straws, and cigarette butts.¹⁶³ These plastics accumulate on beaches and in waterways, damaging marine ecosystems and tarnishing Phuket's reputation as a luxury destination. Tourists confronted by littered beaches or "toxic smoke" from overburdened incinerators are less likely to return. The EIA process has failed to prevent this because of weak monitoring and enforcement. Pattajaree Krassensen article found monitoring data are often unreliable and unchecked due to limited staff capacity.¹⁶⁴ Furthermore, Chaunjit Chanchitpricha and Alan J. Bond stresses that follow-up in Thailand is only partially effective, weakened not just by capacity constraints but by the absence of stakeholder trust.¹⁶⁵ They emphasised that when affected communities view compliance reports as inaccessible or irrelevant, monitoring loses its legitimacy as an accountability tool. When this dynamic is applied to Phuket, the implications are clear. Local communities have long raised concerns about overflowing landfills, odours, and polluted waterways, yet because compliance reports are rarely shared in accessible forms, residents doubt whether developers are genuinely meeting their obligations. This lack of confidence discourages cooperation with waste initiatives, fuels scepticism toward new developments, and erodes the credibility of the EIA system itself. Illustrating the same point, Chutarat Chompunth's study of Rayong shows that when communities feel sidelined in hearings and perceive decisions as predetermined, they disengage from the process altogether.¹⁶⁶ The waste crises in Phuket reveals how weak monitoring mechanisms, combined with mistrust in participation, contribute to escalating cumulative impacts.

¹⁶² Panarat Thepgumpanat and Chayut Setboonsarng, 'Thai Resort Island Phuket Grapples with Growing Garbage Crisis' *Reuters* (16 January 2025) <https://www.reuters.com/world/asia-pacific/thai-resort-island-phuket-grapples-with-growing-garbage-crisis-2025-01-16/>.

¹⁶³ Earth5R, 'Phuket Sustainability Issues and New Solutions' (Earth5R, 2024) <https://earth5r.org/phuket-sustainability-issues-and-new-solutions/>.

¹⁶⁴ Pattajaree Krassensen, Parichart Visvanathan, Supaporn Phongpaichit and others, 'The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand' (2024) 21 *International Journal of Environmental Research and Public Health*, pp. 11-12.

¹⁶⁵ Chaunjit Chanchitpricha and Alan J. Bond, 'Evolution or Revolution? Reflecting on IA Effectiveness in Thailand' (2020) 38(2) *Impact Assessment and Project Appraisal*, pp. 161-163.

¹⁶⁶ Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 43-46.

Finally, Phuket’s marine ecosystems are equally under pressure. Over 130 tonnes of “ghost gear” (AKA abandoned fishing nets and traps) have been removed from local water by divers and NGOs, but vast amounts still remain.¹⁶⁷ These nets entangle turtles, dugongs, and corals, while plastics degrade into micro-particles that infiltrate food chains. For a destination reliant on diving and snorkelling, this degradation directly threatens the island’s economy. This outcome stems from legislative blind spots. Supat Wangwongwatana, Daisuke Sano and Peter Noel King highlight that the NEQA ties EIA obligations to fixed projects lists rather than ecological outcomes.¹⁶⁸ Small-scale fishing, diving operations, and maritime tourism businesses fall outside those lists, and even coastal resort EIAs rarely address offshore debris. Without a cumulative assessment requirement, these diffuse harms remain legally invisible. The absence of stakeholder involvement exacerbates the problem as such where local fishers who witness declining catches and damaged nets are rarely given space in EIA processes to voice their concerns. Their exclusion feeds mistrust, reducing opportunities for collaborative solutions. Instead, NGOs and community groups must step in where the legal system has failed, further signalling that EIA has lost credibility as a governance tool in the eyes of both local residents and resource users.

3.5.2. Koh Samui

Koh Samui is one of Thailand’s most visited islands, and its economy depends on tourism. That success has also produced visible environmental strain, which local actors are now trying to address. UNDP and UN-Habitat have convened community-led processes to refocus development on sustainability, while local consultations repeatedly identify waste and ecosystem stress as priority concerns.¹⁶⁹ Media attention has intensified tourist demand, with commentators expecting a surge following The White Lotus Season 3 and warning that water, waste and reef pressures could worsen without stronger governance.¹⁷⁰ In response, the Ministry of Natural Resources and

¹⁶⁷ Panarat Thepgumpanat, ‘Thai Divers Seek to Take on “Ghost Gear” Threatening Marine Life’ *Reuters* (19 April 2024) <https://www.reuters.com/world/asia-pacific/thai-divers-seek-take-ghost-gear-threatening-marine-life-2024-04-19/>.

¹⁶⁸ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp. 33-35.

¹⁶⁹ United Nations Development Programme (UNDP) and UN-Habitat, *Thailand’s Koh Samui: A Community-Led Journey Toward Sustainability* (10 April 2025) <https://thailand.un.org/en/292438-thailands-koh-samui-community-led-journey-toward-sustainability>; United Nations Development Programme (UNDP) Thailand, *Koh Samui: Bringing the People and the Planet Back to the Heart of the Island* (20 March 2025) <https://www.undp.org/thailand/press-releases/koh-samui-bringing-people-and-planet-back-heart-island>.

¹⁷⁰ “White Lotus Season 3 Will Lead to a Surge in Tourism to the Island of Koh Samui,” *Teen Vogue* (20 February 2025) <https://www.teenvogue.com/story/white-lotus-season-3-tourism-koh-samui>.

Environment introduced new environmental zoning for Surat Thani Province, including Koh Samui, effective 21 May 2025, setting tighter limits on hillside construction, building heights and green space.¹⁷¹ These measures show policy awareness, but they also reveal a gap, since they sit outside the EIA process and do not require cumulative assessment of island-wide impacts.

Overbuilding is the most evident problem and has changed the visual characteristics of Koh Samui in the last twenty years. The construction of vacation houses and resorts on coastal and hillside areas has altered the natural flow of soil and water drainage and caused significant erosion and landslide risks.¹⁷² Most of these developments failed to meet the stipulated lower EIA requirements because of what Pattajaree Krasaesen has identified as a fundamental flaw in Thailand's tiered screening framework, which excludes many small and medium-sized tourism projects even though their cumulative impacts are severe.¹⁷³ Even where EIAs were required, scoping was narrowly drawn by proponents, and local residents had limited opportunity to insist on cumulative analysis. As Chutarat Chompunth shows, developer-controlled scoping sidelines community perspectives and removes cumulative impacts from the agenda at the outset.¹⁷⁴ The outcome on Koh Samui is a sequence of individually approved projects that collectively exceed the island's ecological capacity, yet remain legally defensible under the project-by-project EIA regime.

The overbuilding problem is most clearly reflected in freshwater shortages. Hotels and luxury villas consume far more water than local households, especially during the dry season. During peak months, authorities resort to water rationing, and freshwater is trucked to resorts and urban areas at high cost.¹⁷⁵ EIA reviews for individual developments have not required assessment of island-wide aquifer capacity or modelling of combined extraction by multiple facilities. Chaunjit Chanchitpricha and Alan J. Bond argue that Thai EIA follow-up remains only partially effective, with limited integration of broader systemic risks such as water scarcity into monitoring.¹⁷⁶

¹⁷¹ Sukhothai Inter Law, "New Zoning Law for Koh Samui, Koh Phangan & Koh Tao - What Property Owners & Developers Need to Know" (3 June 2025) <https://www.sukhothaiinterlaw.com/new-zoning-law-for-koh-samui-koh-phangan-koh-tao/>.

¹⁷² United Nations Development Programme (UNDP) and UN-Habitat, *Thailand's Koh Samui: A Community-Led Journey Toward Sustainability* (10 April 2025) <https://thailand.un.org/en/292438-thailands-koh-samui-community-led-journey-toward-sustainability>.

¹⁷³ Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, "The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand" (2024) 21 *International Journal of Environmental Research and Public Health* 644, pp. 7-8.

¹⁷⁴ Chompunth, Chutarat. "Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand." *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, p. 142.

¹⁷⁵ "White Lotus Season 3 Will Lead to a Surge in Tourism to the Island of Koh Samui," *Teen Vogue* (20 February 2025) <https://www.teenvogue.com/story/white-lotus-season-3-tourism-koh-samui>.

¹⁷⁶ Chaunjit Chanchitpricha and Alan J. Bond, "Evolution or Revolution? Reflecting on IA Effectiveness in Thailand" (2020) 38(2) *Impact Assessment and Project Appraisal* 156, pp. 161-163.

Communities experience scarcity directly, and because compliance reports are technical and inaccessible, they mistrust whether developers meet their obligations. As Chompunth's work on participation shows, perceived exclusion and predetermined outcomes lead affected groups to disengage, which reduces accountability and allows over-extraction to persist.¹⁷⁷

Reef ecosystems around Koh Samui also show the cost of cumulative neglect. Coral communities have been stressed by sedimentation from hillside construction, wastewater discharges and anchoring damage from tourism vessels, which undermines fisheries and dive-based tourism.¹⁷⁸ The legal weakness here is structural. As Supat Wangwongwatana, Daisuke Sano and Peter Noel King explain, Thailand's EIA regime is tied to fixed project lists rather than ecological outcomes.¹⁷⁹ Many actors that contribute to reef stress, including small coastal facilities, fisheries and dive operations, fall outside mandatory assessment. Without a mechanism that requires cumulative impact assessment, reef health is left to voluntary efforts by NGOs or individual resorts, which are valuable but cannot substitute for statutory governance.

Recent government zoning is a corrective step, and the UN-facilitated community processes are promising for early participation, yet both developments highlight that cumulative control is being introduced through planning and local initiatives rather than through the EIA framework. Until screening rules are tightened, scoping is opened to genuine community influence, monitoring is verified, and cumulative assessment is mandated, Koh Samui will continue to authorise projects that, in combination, erode the very environmental assets that sustain its tourism economy.

3.5.3. Chiang Mai

Chiang Mai, the cultural capital of northern Thailand, illustrates how cumulative pressures of agricultural practice, tourism, and urban growth converge in ways the EIA framework is ill-equipped to address. Unlike Phuket and Koh Samui, where the problems stem largely from physical overbuilding, Chiang Mai's challenges centre on seasonal air pollution and the ways in which tourism both suffers from and contributes to it.

¹⁷⁷ Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 43-46.

¹⁷⁸ United Nations Development Programme (UNDP) Thailand, *Koh Samui: Bringing the People and the Planet Back to the Heart of the Island* (20 March 2025) <https://www.undp.org/thailand/press-releases/koh-samui-bringing-people-and-planet-back-heart-island>.

¹⁷⁹ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp. 33-35.

The burning season represents the height of the problem. Each year, between January and April, forest and crop residues are burned, producing dense smoke and haze that spreads across the city. The timing of this period is irregular, sometimes beginning as early as December and in other years only intensifying in March, with the haze often persisting until May depending on rainfall and human activity.¹⁸⁰ According to Iglu’s Survivor’s Guide, air quality reaches its most hazardous point at the end of March and early April, when PM2.5 levels climb into the 150-200 range, classified as “Unhealthy,” and on some occasions surge above 600.¹⁸¹ Such peaks create thick brown smog that reduces visibility, disrupts flights, and leads to sharp increases in hospital admissions for respiratory illnesses. This cycle demonstrates not only the intensity of seasonal air pollution in Chiang Mai but also the severe public health consequences that accompany it.

Despite these public health impacts, the problem lies largely outside Thailand’s legal framework for Environmental and Health Impact Assessment (EHIA). Under the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992), EHIA is triggered only for certain categories of high-risk projects such as petrochemical plants, power stations, or large infrastructure.¹⁸² By contrast, diffuse and recurring phenomena such as agricultural burning are not subject to EHIA review. Yet the 2017 Constitution, section 58, stipulates that any undertaking likely to severely affect natural resources, environmental quality, or public health must undergo EHIA, with public participation and independent expert review.¹⁸³ In practice, this constitutional safeguard is undermined by the narrow project-list approach in NEQA. The burning season in Chiang Mai produces exactly the kind of severe impacts the Constitution envisages, but because it does not arise from a discrete project, no EHIA is conducted. This legal gap shows how constitutional rights to health and environmental protection are weakened by statutory design.

There is more than one way to engage with a problem, and tourism interacts with this cycle in complex ways. During the burning season, many foreign tourists, unlike residents, have the ability to escape the haze, either to the south or to other countries altogether. There is also a direct link between tourism and PM2.5 pollution, given that the Thai Hotel Association estimates that the bookings forecast is below what is reasonable and expected, as a direct result of the pollution. With regards to March 2024, The Nation reported that the occupancy rates were between 50 to 55 percent

¹⁸⁰ Holidify, “Burning Season In Chiang Mai - Everything You Need To Know” (2024) <https://www.holidify.com/pages/burning-season-in-chiang-mai-5184.html>.

¹⁸¹ Iglu, “A Survivor’s Guide to Chiang Mai’s Burning Season” (2024) <https://iglu.net/chiang-mai-burning-season/>.

¹⁸² Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992), sections 46-49.

¹⁸³ Constitution of the Kingdom of Thailand B.E. 2560 (2017), section 58.

which is significantly less than the 65 to 70 percent that was expected.¹⁸⁴ This shortcoming was due to Thai tourists also not visiting due to the extreme levels of smog and overpriced tickets. Hotel owners began this process by handing out masks, promoting the idea to the guests that they would be able to avoid the outdoors in the mornings, and that they should engage more in indoor activities; these ideas, unfortunately, are more of a workaround and do not solve the issue at hand.

At the same time, once the haze clears in mid-April, Chiang Mai becomes the centre of the Songkran water festival, attracting tens of thousands of tourists.¹⁸⁵ The festival coincides with the end of the burning season, creating a rapid transition from toxic air to excessive water use and congestion. The contrast underscores the lack of integrated planning: the city experiences months of suffocating air immediately followed by an explosion of tourism demand, without any assessment of how these cycles cumulatively affect air quality, infrastructure, or public health.

Chiang Mai therefore demonstrates the limits of project-based environmental governance in a tourism-heavy urban region. The city's cumulative problems are not resort villas or coastal walls, but overlapping practices such as agricultural burning, vehicle congestion, festival tourism, and seasonal migration of visitors that intensify each other. Without mechanisms to assess cumulative impacts, empower local stakeholders, and bridge agriculture-tourism linkages, Chiang Mai will continue to experience cycles of environmental degradation that damage both resident well-being and its international reputation as Thailand's cultural heart.

3.6 Discussion of Cumulative Impacts and Thai EIA

The assessment of Phuket, Koh Samui, and Chiang Mai shows that Thailand's EIA system under NEQA 1992 is project-focused and does not account for cumulative impacts. This reflects the weaknesses of EIA described in Chapter 2. Wathern explained that EIA often does not change decisions, does not secure environmental gains, does not give communities a real role, creates unnecessary complexity, and becomes more about procedure than outcomes.¹⁸⁶ These weaknesses are evident in Thailand, where the EIA process is highly procedural and cumulative damage in tourist regions continues unchecked. As Section 3.4 showed, decentralisation equips local bodies to assemble area-wide baselines and convene earlier participation, but the Decentralisation Act neither

¹⁸⁴ The Nation, "Tourism affected as Chiang Mai chokes on toxic PM dust" (7 April 2024) <https://www.nationthailand.com/thai-destination/40037749>.

¹⁸⁵ Holidayfy, "Burning Season In Chiang Mai - Everything You Need To Know" (2024) <https://www.holidayfy.com/pages/burning-season-in-chiang-mai-5184.html>.

¹⁸⁶ Peter Wathern (ed), *Environmental Impact Assessment: Theory and Practice* (Routledge 1988) pp. 15-19.

mandates CIA nor authorises local governments to alter national EIA screening list, so cumulative effects remain largely underaddressed in formal approvals.¹⁸⁷

Thai researchers have identified the same flaws. Pattajaree Krasaesen found that monitoring data are unreliable and rarely checked, leaving projects without proper follow-up.¹⁸⁸ Chutarat Chompunth showed that participation is limited, as hearings are controlled by experts and officials while communities are sidelined.¹⁸⁹ These problems matched the findings from the case studies. In Phuket, waste concerns were not taken up. In Koh Samui, local voices about water shortages were ignored. In Chiang Mai, health impacts from the burning season were not considered.

The United States provides a contrast. NEPA requires cumulative and connected impacts to be assessed together with direct and indirect ones.¹⁹⁰ The Council on Environmental Quality later explained that these must be analysed over time and across areas, considering past, present, and future projects.⁵ Thailand has no definition of cumulative impacts in its law, and most small and medium tourism projects avoid assessment even though their combined effect is large.

The European Union SEA Directive requires environmental assessment of policies, plans, and programmes, which forces governments to consider cumulative impacts before development proceeds.¹⁹¹ Thailand does not have an equivalent mechanism. Its EIA process comes late in the planning cycle and is limited to single projects, leaving no space for wider land-use choices or strategic decisions to be reviewed.

Canada has also moved further. Its Impact Assessment Act requires cumulative effects to be examined, including effects on ecosystems and community rights, and courts such as in *Yahey v. British Columbia* has confirmed that these duties are legally enforceable.¹⁹² Thailand has no similar legal pathway, meaning that cumulative impacts are left unmanaged and without accountability.

¹⁸⁷ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), sections 16, 17(5), 29.

¹⁸⁸ Pattajaree Krasaesen and others, “The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand” (2024) 21 *International Journal of Environmental Research and Public Health*, pp. 10-12.

¹⁸⁹ Chompunth, Chutarat. “Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai).” *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp. 43-46.

¹⁹⁰ National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4370h.

¹⁹¹ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment [2001] OJ L 197/30.

¹⁹² *Yahey v. British Columbia* 2021 BCSC 1287.

The cases in Chapter 3 confirm that these gaps have direct effects. In Phuket, the combined expansion of resorts has led to coastal erosion and waste crises. In Koh Samui, hillside development and water use have caused shortages and reef decline. In Chiang Mai, burning practices and tourism activity have created annual air pollution problems with health consequences. None of these outcomes are addressed by the Thai EIA framework, which remains focused on single projects and approval rather than long-term protection.

Thailand's EIA framework reflects both the general weaknesses of EIA noted in Chapter 2 and the specific failures identified by Thai authors. Unless cumulative impacts are built into law, and supported by better monitoring and genuine participation, the system will not be able to protect ecosystems in tourist regions or meet Thailand's constitutional duty to safeguard health and environmental quality.

3.7 SEA in Thailand

Strategic Environmental Assessment (SEA) is discussed here separately because it does not fall under the binding provisions of the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) (NEQA). While NEQA provides the statutory foundation for Environmental Impact Assessment (EIA) and Environmental and Health Impact Assessment (EHIA), it contains no legal mandate for SEA. Instead, SEA has developed in Thailand through non-binding guidelines issued by the Office of Natural Resources and Environmental Policy and Planning (ONEP) in 2009 and subsequent pilot initiatives supported by the National Environment Board.¹⁹³ This discretionary character has meant that SEA has remained fragmented, with no clear legal authority to enforce its findings or ensure integration into plans and programmes. As Chanchitpricha, Morrison-Saunders, and Bond observe, although the 2009 guidelines marked an important step, SEA in Thailand has functioned largely as a technical exercise, without the institutional authority to substantively influence policy or planning decisions. Nor can decentralised authorities require SEA. As previously mentioned in section 3.4, their mandates under Section 16¹⁹⁴ and Section 17(5)¹⁹⁵ concern implementation and participation, not the imposition of strategic-assessment duties; thus decentralisation cannot substitute for statutory SEA obligation.

¹⁹³Chanchitpricha, Chaunjit, Angus Morrison-Saunders, and Alan Bond. "Investigating the Effectiveness of Strategic Environmental Assessment in Thailand." *Impact Assessment and Project Appraisal*, vol. 37, no. 3-4, 2019, p. 356

¹⁹⁴ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), section 16.

¹⁹⁵ *ibid*, section 17.

Evaluations of SEA practice in Thailand between 2001 and 2018 indicate that effectiveness has been partial across all dimensions. While the precise number of SEAs is uncertain, with at least 27 cases prepared according to Kumpa's 2018 (as noted by Chompunth), the available evidence highlights recurring weaknesses.¹⁹⁶ Procedurally, most SEAs followed the steps outlined in guidelines but lacked strong institutional roles or reliable databases to support systematic analysis. Substantively, they had little influence on final policies, with findings acknowledged but not incorporated into binding plans. Transactive effectiveness was limited by short timeframes, insufficient budgets, and a lack of trained personnel.¹⁹⁷ Finally, legitimacy was undermined by narrow participation and centralised control, with communities often excluded from shaping assessments.¹⁹⁸ Overall, evaluations emphasise that SEA in Thailand operates more as a technical exercise than a strategic planning tool, with little power to redirect development trajectories.

Furthermore, the absence of SEA has had clear consequences for tourism-heavy regions. In Phuket, the expansion of resorts, marinas, and transport corridors along the coastline illustrates how cumulative pressures remain unaddressed when only project-level EIAs are applied. A provincial-level SEA could have identified at an early stage that coastal ecosystems faced erosion risks from multiple developments and recommended spatial limits or buffer zones to protect reefs and beaches. Empirical studies of Phuket's shoreline confirm that rapid resort and infrastructure expansion has significantly accelerated erosion at beaches such as Patong and Karon.¹⁹⁹ Without SEA, there has been no mechanism to examine land-use patterns holistically or to direct tourism growth away from sensitive coastal zones, and the result has been piecemeal approvals that collectively exceed the island's ecological carrying capacity.

The same dynamic is evident in Koh Samui, where water shortages and soil erosion have grown more severe in parallel with the spread of resorts and other tourism projects. A strategic assessment of Koh Samui's tourism plan could have flagged groundwater as a limiting factor, requiring policies to manage extraction rates and diversify water supply before further development was approved. Instead, growth proceeded project by project, with many hotels falling below EIA thresholds. SEA could also have been used to consider alternative development models that

¹⁹⁶Chanchitpricha, Chaunjit, Angus Morrison-Saunders, and Alan Bond. "Investigating the Effectiveness of Strategic Environmental Assessment in Thailand." *Impact Assessment and Project Appraisal*, vol. 37, no. 3-4, 2019, p. 358.

¹⁹⁷ *ibid*, p. 365.

¹⁹⁸ *ibid*.

¹⁹⁹Suwanprasit, Chanida. "Effects of Near Shore Land-Use Dynamic on Coastal Erosion in Phuket, Thailand." *IGARSS 2015 - 2015 IEEE International Geoscience and Remote Sensing Symposium*, July 2015, p. 4832.

balanced visitor capacity with natural resource constraints, but its discretionary and non-binding character meant such planning never occurred. The absence of SEA has left Koh Samui's tourism economy without a coordinated strategy for water security, leaving local communities vulnerable each dry season.

Chiang Mai's recurring haze season further highlights the consequences of weak SEA. Agricultural burning is a major source of PM2.5 pollution, but tourist arrivals and vehicle emissions also play an important role. A binding SEA for provincial development strategies could have required integration of air quality management into land-use, transport, and tourism policies. Instead, SEAs conducted in northern Thailand have been ad hoc and advisory, and their findings have not influenced planning decisions. Without strategic coordination, EIAs for new hotels or transport links did not consider their role in worsening seasonal pollution. The lack of SEA has left Chiang Mai with recurring crises each March and April, undermining public health and reducing the city's tourism appeal.²⁰⁰

In all three cases, the discretionary nature of SEA in Thailand has limited its capacity to address cumulative pressures that EIA cannot capture. Where the European Union SEA Directive makes assessments legally binding for all policies, plans, and programmes with environmental implications, Thailand has no comparable statutory obligation.²⁰¹ SEA in Thailand remains a guideline-based tool, unable to prevent cumulative degradation in regions most dependent on tourism.

The evidence from these regions shows that the current SEA framework cannot compensate for the project-by-project limits of EIA. Unless SEA is given a statutory basis under NEQA and made mandatory for tourism and regional development plans, it will remain fragmented and ineffective. Once SEA is given a statutory footing, decentralisation can supply the delivery capacity, including local data systems, standing forum, and by-law linkages, to make SEA findings actionable in tourism plans (see section 3.4). This gap points directly to the need for reform, which will be addressed in Chapter 4.

²⁰⁰ Iglu, "A Survivor's Guide to Chiang Mai's Burning Season" (2024) <https://iglu.net/chiang-mai-burning-season/>.

²⁰¹ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment [2001] OJ L 197/30.

3.8 Concluding Remarks

Chapter 3 showed that Thailand's EIA architecture remains centered on single projects and procedures rather than environmental outcomes. NEQA 1992, even as amended in 2018, supplies the formal steps and assigns roles to ONEP, ERCs, and the NEB, but it does not require cumulative impact assessment, it leaves screening tied to static lists and thresholds, and it relies on consultants hired by proponents. Constitutional safeguards were strongest under Section 67 of the 2007 Constitution and are weaker under Section 58 of the 2017 Constitution, which maintains study and hearing obligations but removes explicit anchors for independent review and community rights. In practice, predictable patterns emerge: screening lists omit much tourism-related development; project-led scoping narrows alternatives; participation amounts to disclosure without influence; and follow-up monitoring remains opaque and seldom independently verified.

Furthermore, the Decentralisation Act gives municipalities, SOAs, and PAOs useful entry points along the EIA and EHIA cycle, and it provides fiscal levers to build data systems and local permitting control. It does not, however, change national project lists, create a duty to assess cumulative effects, or shift core approval authority. The legal centre of gravity still sits with NEQA. That is why local initiative improves implementation but cannot cure structural defects.

Importantly, the regional case studies made these structural limits concrete. In Phuket, coastal erosion and waste crises emerged from many individually approved actions that were never assessed as a whole. In Koh Samui, hillside building, water demand, and reef stress accumulated beyond the capacity of project-by-project review. In Chiang Mai, seasonal air pollution showed how diffuse practices that harm health and tourism sit outside the current EHIA triggers. Across all three, communities perceived participation as late, technical, and ineffectual, which undermined trust and reduced compliance.

Taken together, the analysis confirms three core findings. First, Thailand lacks a legal mechanism that sees patterns across time and space, so cumulative effects in tourism regions remain largely unmanaged. Second, institutions enforce conditions unevenly, because monitoring relies on developer reporting and disclosure is limited. Third, participation does not yet function as a source of usable knowledge or accountability, so decisions do not benefit from local evidence and social consent. These conclusions echo long-standing critiques by Thai scholars such as Supat Wangwongwatana, Chanchitpricha and Bond, and others, who document outdated screening lists,

form-driven participation, weak monitoring, and the need to institutionalise SEA and strengthen capacity at regional levels.

These findings point directly to the reform agenda. A credible system needs clear rules for cumulative assessment, earlier and strategic assessment at the plan and programme level, participation that has consequences, and monitoring that is verified and public. Chapter 4 translates those necessities into specific short-term measures that can be taken under existing NEQA authorities and longer-term statutory amendments that align Thai practice with contemporary standards while fitting its institutional context.

Chapter 4: Recommendations

The findings in Chapter 3 showed that the Thai EIA framework is not equipped to deal with cumulative impacts. Its focus on single projects, reliance on thresholds, weak enforcement, symbolic participation, and poor monitoring all limit its effectiveness in tourism-heavy regions. Reform is therefore required on two levels. Some improvements can be achieved within the existing text of NEQA 1992, while others will require amendment of the Act itself. Section 4.2 considers short-term reforms that operate within current legal boundaries, and section 4.3 sets out long-term reforms that call for structural change.

In follows, every recommendation is intended to have binding legal effect, not merely advisory value. In the short term, enforceability can be achieved through instruments already authorised under NEQA, such as ministerial notifications, administrative rules, and conditions attached to project approvals. In the long term, binding force would come from statutory amendments to NEQA and, where necessary, clarification at the constitutional level, ensuring that assessment, participation, and monitoring obligations carry clear legal duties and consequences for non-compliance.

At the heart of these reforms lies the balance between economic growth and sustainable development. Tourism has long been central to Thailand's national strategy for economic expansion, generating employment and foreign revenue. However, the pursuit of continuous growth through rapid tourism-related development has increasingly come at the expense of environmental integrity and local welfare. The communities of Phuket, Koh Samui, and Chiang Mai bear the long-term consequences of degraded ecosystems, resource shortages, and declining public health, while tourists experience these destinations only temporarily. When environmental governance limits local participation, whether through inaccessible technical language, restricted access to information, or late-stage consultation, decisions are made about communities rather than with them. This exclusion erodes trust, weakens morale, and fuels resentment toward development projects. Over time, this social disengagement undermines not only environmental sustainability but also the very economic appeal of these regions. A tourism economy cannot thrive indefinitely in an unhappy or environmentally exhausted society. The reforms proposed in this chapter therefore aim not merely to improve regulatory efficiency, but to restore balance by ensuring that economic progress, environmental stewardship, and community well-being reinforce rather than weaken one another.

Strengthening Thailand’s EIA system is thus both an environmental and a social imperative. A reformed framework would allow development to proceed in a manner that safeguards ecosystems, respects the rights and voices of affected communities, and maintains Thailand’s international reputation as a destination known not only for its natural beauty but also for the genuine well-being of its people.

4.1 Short-term Recommendations

Short-term reform does not necessarily require an immediate amendment of the NEQA (1992) since the Act already provides several administrative tools that, if applied more proactively through ministerial notification and departmental orders, can deliver meaningful improvement. These existing mechanisms can directly address the operational weaknesses identified in Chapter 3, including the absence of cumulative assessment (section 3.3.1), weak enforcement (section 3.3.3), limited participation (section 3.3.4), and ineffective monitoring (section 3.3.5). By fully utilising the powers already contained within NEQA, environmental authorities can strengthen implementation and accountability in the short term, creating a more functional system of environmental governance while broader statutory reform is being developed.

4.1.1 Suggestions

(a) Screening Thresholds and Project Scope

i) Issue

Section 46 authorities ministerial notification specifying which project types and sizes require EIA or EHIA. These notifications are rarely revised and fail to capture evolving forms of tourism-related development. The gap allows numerous medium-scale resorts, hillside villas, and leisure facilities to proceed unassessed even when their combined effects (e.g. beach erosion, water shortages, waste crises) are severe. The inflexibility of the screening list thus perpetuates the “project-by-project blindness” identified in sections 3.2.1 and 3.3.1.

ii) Solution: NEQA, Section 46.

Acting on ministerial notification, MoNRE should conduct a biennial review of EIA/EHIA screening thresholds using cumulative-impact evidence compiled by ONEP and provincial

offices²⁰²; established a “clustered tourism development” trigger so that when multiple facilities within a defined radius or time window share infrastructure or ecological receptors an assessment is required; and adopt an anti-fragmentation rule requiring sequential, adjacent, or functionally linked proposals by the same proponent or related entities to be treated as a single project for screening, scoping, and approval.

iii) Significance

Regular threshold review reconnects legal obligation with on-the-ground reality. Environmental pressures in Phuket and Koh Samui no longer come from mega-resorts but from dozens of medium-sized projects whose cumulative draw on groundwater and waste capacity far exceeds any individual EIA forecast. Lowering thresholds would therefore expose the true aggregate footprint of development. The “clustered development” trigger converts the EIA from a static checklist into a living risk-screening instrument. It ensures that the cumulative dimension, now invisible in Thai law, becomes administratively visible, allowing early refusal or resiting before irreversible damage occurs. By explicitly empowering MoNRE to revisit lists, Section 46 can evolve into a preventive tool aligned with the precautionary principle.

ib) Risk & Safeguards

Frequent threshold revisions could increase administrative load and create uncertainty for investors. To manage this, MoNRE could adopt rolling updates where new categories take effect after six-month *vacatio legis*²⁰³ after notification, giving developers lead time.²⁰⁴ A practical approach would be to start small in the most affected areas, such as Phuket and Koh Samui, by testing the new rules and monitoring systems in real conditions. After that, the lessons learned from these pilots could then inform adjustments before scaling up nationwide. Transparency about criteria (such as ecological sensitivity score or water-stress indices) would maintain investor confidence while prioritising sustainability.

(b) Review Process & Decentralisation

i) Issue

²⁰² Note: it is short enough to reflect evolving tourism pressures yet long enough for agencies to compile, verify, and consult on revisions.

²⁰³ Legal term (absence of law): the interval between promulgation and entry into force.

²⁰⁴ Note: the six-month transition period proposal is a timeframe that reflects international regulatory practice. The EU, Canada, and the U.S. typically allow 3-12 months for new environmental assessment obligations to take effect.

Section 47 centralises review in ONEP and its Bangkok-based ERCs. However, results are delayed, over-centralised, and decisions are detached from local conditions (a weakness made clear in Phuket, Koh Samui, and Chiang Mai (sections 3.5.1-3.5.3.)).

ii) Solution: NEQA, Section 47.

Within the current framework of NEQA, MoNRE could operationalise decentralisation through four improvements. First, constitute regional EIA sub-committees comprising provincial environmental and planning officials, local academics, and technical experts, civil-society representatives and community leaders, and at least one national-level expert appointed by ONEP to ensure consistency. Second, delegate initial review authority to these regional sub-committees for projects within their jurisdiction, while ONEP retains final oversight through periodic audits and a formal appeal mechanism for complex or precedent-setting cases. Third, strengthen procedural transparency by publishing committee decisions, minutes, and any dissenting opinions online, ensuring public access via ONEP's digital portal, and recording and summarising regional hearings for public reference. Fourth, maintain national coherence through ONEP manuals that set uniform review criteria and quality standards, specific reporting templates and timelines, and require cross-regional peer review.

iii) Significance

Environmental stressors are inherently territorial. A wastewater problem in Phuket's coastal resorts or hillside construction in Koh Samui cannot be understood from Bangkok, where the ERCs currently operate under ONEP. The environmental, hydrological, and socio-economic conditions of each province differ, meaning that centralised review often produces generic assessments detached from local realities. Establishing regional review sub-committees would localise expertise and embed ecological context directly into the evaluation process.

Decentralisation would also reduce administrative congestion and shorten approval timelines, encouraging developers to comply earlier rather than contest decisions later. This change directly addresses the procedural inefficiencies identified in Chapter 3, where project delays and community frustration often stemmed from slow, centralised decision-making. The regionalisation of review would further align with Thailand's constitutional and administrative trend toward

devolution of environmental management under the 2017 Constitution²⁰⁵ and the Decentralisation B.E 2542 Act (1999).²⁰⁶

From a governance standpoint, regional transparency could help rebuild public trust. The Map Ta Phut Industrial Estate case illustrated how opaque, centrally driven approvals and unclear reasoning caused public outrage, litigation, and loss of institutional credibility. Publishing decisions, minutes, and dissenting opinions at the regional level would create a culture of procedural accountability and open deliberation, countering the perception of political interference.

In tourism-heavy provinces, a decentralised view carries an added benefit: it integrates lived experience into regulatory judgement. Local fishers, hotel operators, and municipal officers in Phuket and Koh Samui understand seasonal patterns of erosion, water scarcity, and waste generation that are rarely captured in desk-based EIAs. Similarly, in Chiang Mai, provincial authorities are better positioned to link EIA conditions to seasonable air quality management plans and tourist flow patterns. Embedding this local knowledge in review decisions would make EIA approvals not only faster but more adaptive, legitimate, and sustainable.

Ultimately, decentralisation transforms environmental governance from a distant bureaucratic process into one that is context-sensitive and participatory. It would bridge the gap between the national policy centre and local implementation, ensuring that environmental review reflects the realities of Thailand's diverse ecosystems and communities.

ib) Risk & Safeguards

Local capture and inconsistent standards are legitimate risks in a decentralised system. In some provinces, close relationships between developers, officials, and local politicians could compromise impartiality. Variations in technical capacity among regions could also lead to uneven quality of review creating uncertainty for investors and weakening regulatory credibility.

These risks can be mitigated through multiple safeguards. First, membership of regional review committees should rotate periodically and include representatives from civil society and academia to balance interests. This rotation would prevent entrenched influence and maintain independence. Second, ONEP should establish a national peer-review mechanism, where one region's EIA decisions are periodically reviewed by experts from another. This cross-regional audit

²⁰⁵ Constitution of the Kingdom of Thailand B.E. 2560 (2017), sections 249-250.

²⁰⁶ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act*, B.E. 2542 (1999), sections 16, 29, 30(5).

would harmonise interpretive standards and discourage local bias. Another safeguard is to also have a national training and accreditation programme for committee members, administered by ONEP in partnership with Thai universities, to ensure that all reviewers meet common technical and ethical standards regardless of location.

Furthermore, in order to maintain consistency in interpretation, ONEP should retain the power of recall for cases with trans-provincial or precedent-setting implications. Projects that affect multiple jurisdictions (e.g. inter-land marine transport routes, large tourism corridors or hydrological systems shared between provinces) should remain under the oversight of the central ERCs in Bangkok. This division of authority would allow local bodies to handle most cases while reserving complex or nationally significant matters for central review.

Finally, transparent publication of committee decisions, reasoning, and minority opinions would serve as a public safeguard against political interference. When decisions are open to public scrutiny, the risk of regulatory capture diminishes. Decentralisation, therefore, does not mean deregulation; it redistributes responsibility while strengthening oversight through transparency and structured accountability.

(c) Public Disclosure & Participation

i) Issue

Participation under Section 48 of NEQA occurs late in the process and is presented in highly technical formats. Hearings dominated by officials and consultants often reduce communities to passive listeners rather than decision-making partners. As noted in section 3.3.4, consultation frequently becomes symbolic and is held only after project design and ToR are completed. This creates an information imbalance where local communities are expected to respond to complex environmental data that they cannot interpret or influence. The result is not consensus but frustration and mistrust, as evidenced in protests across Krabi and Rayong. The constitutional guarantee of participation under Section 58 of the 2017 Constitution, while broad, remains unfulfilled because NEQA lacks clear procedural requirements for timings, accessibility, and feedback integration.

ii) Solution: NEQA, Section 48.

Within the current law, ONEP could issue binding procedural rules to operationalise the right to participation by requiring four minimum measures. First, draft EIAs and ToR must be published online and deposited at accessible local offices within the affected area, such as PAOs, Tambon Administrative Organisations, or municipal offices, for a defined comment period, for example at least thirty days before scoping and 45 days before approval, with documents provided in searchable, machine-readable formats and in Thai and relevant local dialects. Second, all technical reports must include plain-language summaries, maps, and impact tables that clearly state baselines, alternative considerations, predicted cumulative effects and proposed mitigation so non-specialist can understand trade-offs. Third, every final approval must append a response matrix that lists each substantive comment with an explanation of how it was addressed, whether by accepting, modifying, or rejecting it, together with reasons; each submission should receive a tracking number and the matrix should be posted publicly. Fourth, hearings must be held within affected localities, not only in provincial centres, with minimum notice periods, accessible venues, interpretation where needed, and accommodations such as evening scheduling to enable worker participation. The rules should make compliance reviewable by ONEP and the EIA Expert Committee, with non-compliance serving as a ground to suspend timelines, require revisions, or withhold approval. Thus, these procedural guarantees would convert participation from an abstract principle into a structured and enforceable process that empowers communities and improves decision quality.

iii) Significance

Early and transparency participation prevents environmental conflicts before they escalate. This is important as when communities understand how proposed projects (such as groundwater extradition in Koh Samui or coastal development in Phuket) will affect their daily lives, they can suggest contextually grounded mitigation measures. This inclusive process not only improves project quality but also reduces the risk of litigation, protests, and costly delays. In the long term, it builds public trust and legitimacy, making environmental governance more durable and credible.

iv) Risk & Safeguards

Opening participation too widely can risk politicisation, consultation fatigue, or manipulation by vested interests. Agencies also fear that early disclosure of draft assessments could trigger lawsuits before project design is finalised. These risks can be mitigated by establishing clear

consultation timelines and closing windows for comment after each phase; developing standard templates and summary formats to maintain consistency and readability; ensuring translation and local dissemination through community meetings or notice boards; and creating a national online EIA portal to centralise disclosure, prevent selective transparency, and ensure equal access for rural communities. Hence, this framework would promote informed participation without paralysing the decision-making process, ensuring that consultation strengthens governance rather than obstructing it.

(d) Monitoring & Inter-Agency Coordination

i) Issue

Post-approval monitoring remains one of the weakest elements of Thailand's EIA practice. This is because developers often self-report, agencies seldom verify, and data are rarely disclosed to the public. As a result, potential violations (e.g. wastewater discharge in Phuket or illegal groundwater extraction in Koh Samui) could go undetected or unaddressed, allowing environmental degradation to persist unchecked (see section 3.3.5).

ii) Solution: NEQA, Section 51.

ONEP could use its authority under Section 51 to issue detailed guidance and administrative rules to strengthen monitoring and coordination by first, linking every mitigation measure in the EIA as to a measurable indicator that specifies the monitoring frequency, the method, and the responsible agency; second, concluding Memoranda of Understanding (MOUs) that clarify inspection duties among ONEP, MoNRE provincial governments, and local administrations; third, requiring third-party audits by universities or certified laboratories to verify compliance data; fourth, piloting digital, real-time monitoring, including air and water quality sensors, in tourism-intensive provinces such as Chiang Mai and Phuket; and fifth, establishing a graduated enforcement ladder that ranges from warnings and corrective plans to suspension or prosecution for repeated violations.

iii) Significance

Monitoring is what converts promises into performance. When responsibilities and indicators are explicit, follow-up no longer depends on discretion. Real-time data provide objective evidence for enforcement and enable early intervention by local offices, reducing remediation costs.

Public dashboards would allow citizens to track compliance and even create social pressure for honesty, closing the accountability gap left open by self-reporting. Existing international models demonstrate that such systems are technically and institutionally feasible. In the U.S., the Environmental Protection Agency's Enforcement and Compliance History Online (ECHO) database gives the public online access to compliance and enforcement data, showing how centralised digital reporting can support transparency and accountability.²⁰⁷ Likewise, the European Environment Information and Observation Network (EIONET) illustrates how structured data collection and open dissemination under Article 10 of the SEA Directive (2001/42/EC) can strengthen inter-agency coordination and public awareness.²⁰⁸ These examples are not normative benchmarks but practical demonstrations that similar transparency tools could be implemented within Thailand's EIA framework.

iv) Risk & Safeguards

Technology without institutional capacity risks creating the illusion of oversight. Equipment installation should therefore be accompanied by staff training and a maintenance budget financed by project proponents. Furthermore, to avoid data overload and role confusion, ONEP should concentrate on setting national standards, coordinating agencies, and exercising oversight, while a separate environmental monitoring and disclosure unit established under ONEP's supervision manages data collection, integration, and public disclosure through a national portal similar to the EU's EIONET model. This division of responsibilities prevents administrative overload and ensures a specialised focus on data quality and access. ONEP should keep its monitoring scope to key indicators with direct relevance to public health and tourism value, such as seawater coliform counts, PM 2.5 levels, and groundwater salinity. In addition, independent audits should be conducted annually to verify the integrity and accuracy of reported data.

4.1.2 Expected Outcomes

Integrated reforms would transform NEQA from a symbolic framework into an operational system of environmental governance. Revised thresholds would expose cumulative impacts previously overlooked; stronger participation rules would democratise environmental decision-making; decentralised review would localise expertise and reduce delay; and clearer

²⁰⁷ Note: ECHO was developed much later by the EPA as an administrative transparency tool, allowing the public to track compliance, inspection, and enforcement data across facilities.

²⁰⁸ Note: EIONET (under Reg. (EC) No. 401/2009) separate from the SEA regime, but Directive 2001/42/EC articles 9-10 mandate public access, consultation statement, and monitoring; EIONET's Reportnet helps authorities deliver these duties.

monitoring duties would convert self-reporting into verifiable accountability. Together, these improvements would make EIA not merely a procedural formality but an active instrument for prevention and public oversight.

In the short term, these changes would reduce conflict, improve data credibility, and produce visible enforcement outcomes, all foundational elements of an environmental rule of law that commands public trust. Over time, the institutional learning and inter-agency coordination developed through these reforms would form the administrative backbone for the legislative amendments proposed in section 4.2. They would enable Thailand to integrate cumulative impact assessment, formalise SEA, and realign its environmental governance with the intertwined goals of sustainability, accountability, and community well-being, consistent with the participatory guarantees of the 2017 Constitution.²⁰⁹

Therefore, the short term-reform discussed above strengthens what already exists within the NEQA framework, creating a more transparent, responsive, and enforceable system. However, these measures can only go so far without deeper legal reform. Lasting change requires embedding cumulative assessment, strategic evaluation, and independent oversight directly into Thai law. The following section therefore turns to long-term reforms, outlining the legislative amendments necessary to make NEQA a comprehensive and forward-looking framework for sustainable development.

4.2 Long-term Recommendations

4.2.1 Suggestions

(a) Statutory Requirements for CIA

i) Issue

NEQA currently lacks a definition of “cumulative impacts” and imposes no duty on project proponents or regulators to evaluate them.²¹⁰ As a result, environmental decline driven by the interaction of multiple small projects remains legally invisible. This omission perpetuates the project-by-project orientation of Thai EIA, where each development is assessed in isolation, even when it contributed to regional environmental degradation. In tourism-heavy regions like Phuket,

²⁰⁹ Constitution of the Kingdom of Thailand B.E. 2560 (2017), section 58.

²¹⁰ Enhancement and Conservation of the National Environmental Quality Act B.E. 2535 (1992), sections 46-51.

Koh Samui, and Chiang Mai, such fragmented assessment has allowed incremental harm, (e.g. coral reef decline, air pollution, and groundwater depletion) to accumulate without formal recognition or mitigation.

ii) Solution: Amend NEQA

A four-part reform is required: (i) insert a statutory definition of “cumulative environmental impacts” as the incremental impact of a proposed activity when combined with past, present, and reasonably foreseeable future actions²¹¹; (ii) mandate that every EIA include a dedicated section assessing cumulative, indirect, and synergistic effects with clear spatial and temporal boundaries; (iii) empower ONEP to issue technical guidance specifying methodologies, baselines, and data-sharing protocols for cumulative impact analysis; and (iv) require that cumulative findings directly determine approval conditions, mitigation, and monitoring so decisions reflect the combined footprint of development.

iii) Significance

Introducing a statutory requirement for cumulative impact assessment would directly confront one of the deepest structural weaknesses in Thailand’s environmental governance. As shown in Chapter 3, the current EIA process treats projects as isolated entities. This fragmented approach conceals the combined effects of numerous smaller developments that, over time, exhaust local ecosystems.

A legal duty to evaluate cumulative impacts would reorient Thai environmental law from reactive control to proactive management. Instead of responding to pollution after damage occurs, regulators would be equipped to anticipate where cumulative thresholds are approaching critical levels. For example, in Phuket, cumulative analysis could reveal how the expansion of resorts and marinas increases sedimentation that harms coral reefs. In Samui, it would identify how multiple hillside villas collectively alter water retention and slope stability. In Chiang Mai, it could trace how overlapping urban and industrial activities contribute to persistent PM2.5 pollution levels.

Importantly, CIA should be established as a distinct statutory instrument rather than merely a subsection within project-level EIA. The two assessments serve different purposes. EIA examines the direct and site-specific effects of a single project, while CIA evaluates the aggregate and

²¹¹ Note: this proposal is derived from the NEPA model, especially CEQ’s cumulative-effects guidance and EPA’s NEPA review guidance, see Council on Environmental Quality (CEQ), *Regulations for Implementing NEPA* (40 CFR §1508.1(i)(3)).

interactive consequences of multiple activities across time and space. When cumulative impacts are treated as an appendix to an EIA report, they become secondary to project approval, constrained by the proponent's limited perspective and data. A separate statutory process would ensure independence, objectivity, and regional coordination, allowing cumulative pressures to be managed across multiple jurisdictions rather than through fragmented, project-by-project reviews.

This reform would also strengthen administrative coordination. At present, agencies operate on disconnected datasets, each evaluating only its own jurisdiction. A cumulative assessment framework would require shared baselines, forcing ministries to coordinate their data collection and planning. This would make environmental decision-making more coherent, transparent, and evidence-based.

Finally, it would enhance legal certainty. When cumulative effects are legally defined and required to be analysed, project proponents gain predictability about the standards they must meet, while affected communities gain confidence that broader environmental pressures are being accounted for. The change would thus improve both regulatory efficiency and public trust, transforming from a procedural formality into a substantive safeguard for sustainable development.

iv) Risk & Safeguards

While the benefits of the CIA are clear, its success depends on careful implementation. Therefore, several challenges may arise. First, methodological uncertainty, as determining the area and timeframe for cumulative analysis is a technical challenge. For example, if the study area is too small, major impacts from neighboring projects may be ignored but if it is too large, data becomes unmanageable and conclusion uncertain. Similarly, assessing too short or too long a time horizon can distort results. In order to ensure consistency, ONEP should develop clear national guidance on how to set spatial and temporal boundaries for CIA, identifying appropriate environmental indicators for each region. Pilot studies could then be used to refine these methods over time, allowing Thailand to build cumulative assessment capacity through a practical, learning-based approach.

Another challenge could be data fragmentation, due to the environmental information in Thailand being dispersed across multiple agencies, making cumulative assessment difficult. A safeguard would be the creation of some kind of a national environmental information center (like

the U.S. National Centers for Environmental Information (NCEI))²¹² at the ONEP that brings together baseline data, EIA/EHIA reports, and post-approval monitoring in one public database; this would cut duplication and enable credible cumulative-impact analysis.

Institutional capacity and cost is another risk, since developers and smaller local authorities may view CIA as costly or technically demanding. This can be addressed by adopting a tiered approach where (i) small projects conduct simplified cumulative screening; (ii) medium to large projects conduct detailed CIA using shared baselines; and (iii) ONEP and universities provide training and technical assistance.

A further challenge is regulatory overlap. To avoid duplication with SEA and EHIA, coordination protocols should be established. ONEP could ensure that CIA findings at project level inform SEA policy-making and EHIA decisions, maintaining continuity across the assessment hierarchy.

Finally, transparency and accountability require cumulative impact data to be publicly accessible to maintain credibility. Reports should include plain language summaries, be open for public comment, and be peer-reviewed by accredited experts. This transparency would counteract past perceptions of selective disclosure and help restore community confidence.

With these safeguards, the CIA would not overburden Thailand's EIA framework but rather make it more coherent, anticipatory, and trustworthy. It would give legal and institutional recognition to the reality that environmental harm is collected, not isolated and that sustainability requires looking beyond single projects to the wider systems they affect.

(b) Rebalancing expertise and participation

i) Issue

The current EIA process in Thailand is overly technocratic. It depends heavily on consultants and expert committees, while those most affected by environmental decisions (local residents) are largely excluded from assessment and reviews. As identified in section 3.3.4 and 3.3.5, public hearings are often dominated by officials and consultants who use highly technical language, leaving communities unable to meaningfully engage. Academic studies by Krasesen and

²¹² National Centers for Environmental Information. "National Centers for Environmental Information (NCEI)." *National Oceanic and Atmospheric Administration*, 2024, <https://www.ncei.noaa.gov/>. Accessed 13 Oct. 2025.

Chompunth show that EIA documentation is often inaccessible, participation windows are short, and hearings are held far from affected villages. Consequently, participation becomes symbolic rather than substantive, with residents unable to influence scoping, methodology, or mitigation decisions. This perception of procedural formality has fostered distrust and recurring conflict, as witnessed in Rayong and Krabi.

ii) Solution: integrating sections 48 and 49 to connect expertise with local knowledge

Sections 48 and 49 of the NEQA should be jointly revised to close the divide between expert-led assessments and community participation. Section 48 would define participation as a substantive right and procedural duty, while Section 49 would require consultants to integrate local knowledge and validate findings with affected communities. Altogether, these changes would operationalise participatory expertise as part of Thailand's EIA process.

Specific measures should include inserting a new subsection under Section 48 requiring a community validation session before final EIA submission, where findings and mitigation measures are presented in plain language to local residents; amending Section 49 to oblige accredited consultants to collaborate with community representatives during the scoping and reporting phases, documenting how local concerns were addressed; empowering ONEP to issue ministerial regulations prescribing plain-language summaries in Thai and relevant local dialects, and mandating their publication online and at district offices; establishing joint technical-community review panels composed of accredited experts, civil society delegates, and local representatives whose written comments must be annexed to final approvals; and requiring project-proponents to submit a statement of community input integration explaining how public feedback was reflected in the final design or, if not adopted, why it was deemed unfeasible.

iii) Significance

This reform addresses the credibility gap that arises when environmental expertise is monopolised by consultants and detached from local knowledge. Embedding participatory validation within the EIA process transforms environmental knowledge from a one-way technical product into a co-produced, contextual grounded understanding of risk. Local residents often

possess critical environmental insights (e.g. knowledge of groundwater flow, coral bleaching patterns, or seasonal smoke intensity) that experts, working remotely, may overlook.²¹³

Therefore, incorporating this insight would not only improve technical accuracy but also restore public confidence in environmental governance. When communities see that their experiences directly inform mitigation measures, participation ceases to be symbolic. The resulting process is both more legitimate and more resilient to conflict. Canada's Impact Assessment Act provides an example of this model, where 'community validation' mechanisms ensure that technical analyses are tested against stakeholder knowledge before approval.²¹⁴ Embedding a similar approach within Thailand's NEQA would operationalise the participatory guarantees of Section 58 of the 2017 Constitution, which affirms the right to receive information, express opinions, and participate in decision-making on projects that may severely affect communities.²¹⁵

iv) Risks & Safeguards

Procedural delay may occur extended validation sessions could slow approvals; to prevent this, ONEP should set fixed consultation windows (e.g. 20-30 days)²¹⁶ and accept electronic submission to streamline review. There is also a risk of local elite capture: consultations might be dominated by vocal local leaders or vested interests; transparent selection criteria and rotating community delegates can ensure broader representation. In addition, fragmented feedback can arise because diverse community opinions may create inconsistency in the record; a national community validation template should categorise input by issue and response to improve comparability. Moreover, technical complexity can overwhelm non-experts; consultants must prepare plain-language summaries reviewed by ONEP for clarity before dissemination. Finally, weak enforcement is a concern as without consequences, participation could remain symbolic; the revised Section 48 should make the absence of a validation session or of documented community input a legal ground for rejecting or suspending project approval. These integrated

²¹³ Kritsadarat Krasaesen, et al., "The Performance of Environmental and Health Impact Assessment Implementation in Thailand." *Sustainability*, vol. 16, no. 3, 2024, p.2; Chompunth, Chutarat. "Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai)." *NIDA Development Journal*, vol. 60, no. 1-2, 2020, p. 44

²¹⁴ Impact Assessment Act, S.C. 2019, c. 28, sections, 1, 11, 22(1), 27, 51, 63 (Canada).

²¹⁵ Constitution of the Kingdom of Thailand B.E. 2550 (2007), Section 67; Constitution of the Kingdom of Thailand B.E. 2560 (2017), Section 58.

²¹⁶ note: drawing on comparative practice, Canada's Impact Assessment (30 days) and U.S. NEPA (45 days), 20-30 days early-stage consultation window, when supported by e-submissions, appropriately balances decision speed and stakeholder input quality.

safeguards maintain efficiency while ensuring participation strengthens rather than hinders the technical integrity of the EIA process.

(c) Legalising SEA

i) Issue

NEQA provides no binding legal basis for SEA. Existing SEAs in Thailand are conducted on a voluntary or project-specific basis through externally supported pilot initiatives, lacking statutory authority or consistent methodology.²¹⁷ As a result, national or provincial development plans proceed without systematic evaluation of cumulative or cross-sectoral effects. Hence, the absence of SEA reinforced the project-by-project orientation already discussed in section 3.3.1, preventing early integration of environmental concerns into policy and planning. This omission leaves cumulative pressures such as tourism zoning in Phuket, water scarcity in Samui, or air pollution in Chiang Mai unaddressed until after environmental damage has occurred.

ii) Solution: introduce a statutory SEA framework within NEQA

A new chapter or subsection under NEQA should explicitly require SEA for all PPPs likely to have significant impacts, following the approach of the EU SEA Directive 2001/42/EC.²¹⁸ Key features should include a statutory trigger requiring SEA for national and provincial plans in land use, tourism, transport, and energy sectors; clear designation of ONEP as the coordinating authority, with provincial environmental offices conducting local-level SEA and submitting reports for national review; integration of SEA outcomes into the approval process for PPPs so that a plan cannot be adopted until environmental implications have been assessed and mitigation alternatives considered; mandatory public participation and inter-agency consultation during SEA preparation, mirroring Article 6 of the EU Directive; and a legal requirement that SEA findings guide subsequent project-level EIAs, ensuring consistency between strategic and project decisions.

iii) Significance

Legalising SEA would fundamentally shift Thailand's environmental governance from reactive to preventive. By embedding assessment at the strategic stage (before individual projects

²¹⁷ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p. 57.

²¹⁸ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment [2001] OJ L 197/30, articles 3-10.

are proposed) SEA ensures that environmental considerations influence which developments occur, where and how. This reform would correct one of the central limitations identified in Chapter 3, that is, Thailand's reliance on post-hoc, project-level EIAs that assess impacts only after policy directions are set.

SEA would allow Thailand to identify environmental constraints and opportunities early in the planning cycle. For example, a legally mandated SEA for a regional tourism plan in Phuket could anticipate coastal carrying capacity limits and direct investment away from eroding shorelines; an SEA for the Surat Thani regional plan could impose water-use thresholds for the resorts in Koh Samui; and an SEA for northern economic-corridor development could address seasonal air-quality management in Chiang Mai. Each of these interventions would help prevent cumulative degradation rather than merely documenting it afterward.

Institutionally, SEA would promote inter-ministerial coordination between agencies responsible for tourism, energy, transport, and land-use planning which are sectors currently operating in isolation. It would also give legal force to early public participation, ensuring that community concerns are integrated at the planning stage rather than emerging as conflict during project approval. In doing so, SEA would transform environmental protection from a bureaucratic obligation into a proactive governance tool that balances development with long-term ecological sustainability.

iv) Risk & Safeguards

Institutional overload because expanding assessment to the policy level may initially strain ONEP's capacity. This can be mitigated through a phased rollout (e.g. beginning with high-impact sectors such as tourism and energy) and technical partnerships with universities to support modelling and data analysis. Overlap with EIA/EHIA is another risk whereby without a clear procedural separation, SEA may duplicate project-level assessments. The new NEQA provisions should establish a hierarchical linkage, stating that SEA results set the baselines for subsequent EIAs, while project-specific studies need only to address deviations or refinements. Politicisation of planning is also possible, since strategic-level assessment could be perceived as obstructing national development agendas. To safeguard neutrality, SEA committees should include independent experts nominated by professional bodies and civil society, not solely ministry appointees. Finally, superficial implementation is a concern where there is a risk that SEA becomes a formalistic exercise similar to EIA's current weaknesses. Mandatory publication

of draft SEA reports, along with requirements for ministerial responses to recommendations, would create public accountability and prevent rubber-stamping. When combined, these safeguards would ensure SEA is not an additional layer of bureaucracy but a framework that simplifies long-term decision-making by preventing conflicts, improving planning coherence, and reducing costly project-level disputes.

(d) Post-monitoring and EIA enforcement

i) Issue

Follow-up and enforcement remain the weakest dimensions of Thailand's EIA system. NEQA Section 51 requires project proponents to submit environmental monitoring reports, yet the provision lacks precision: it does not specify the frequency of submission, the verification mechanism, or penalties for non-compliance. In practice, this has led to widespread reliance on self-reporting, minimal cross-agency inspection, and the non-publication of results. As discussed in Section 3.3.5, these deficiencies mean that violations (e.g. excessive wastewater discharge, unpermitted groundwater extraction, or air-quality breaches) often go undetected or unaddressed.

This is important as this weakness is not merely procedural. It undermines the credibility of the entire EIA regime, allowing developments that received approval based on conditional mitigation plans to operate unchecked. When monitoring is sporadic and opaque, environmental safeguards exist only on paper, leaving ecosystems and communities vulnerable to progressive, cumulative harm.

ii) Solution: strengthening Section 51 through binding monitoring and penalty mechanisms

Section 51 should be comprehensively revised to make post-approval monitoring a statutory obligation with enforceable consequences. The amendment should therefore include a requirement that every approved EIA contain a monitoring and compliance plan specifying measurable indicators, reporting frequency, and responsible agencies; a legal duty on developers to submit verified data to ONEP and the relevant provincial office at defined intervals (e.g. every six months); authorisation for third-party verification by accredited universities, certified laboratories, or independent auditors; a mandate for public disclosure of monitoring data through a national online portal maintained by ONEP; and an explicit penalty regime for non-compliance, including fines, project suspension, or revocation of environmental clearance.

These measures would transform monitoring from a passive obligation into a continuous enforcement mechanism, ensuring that commitments made during the EIA process are meaningfully implemented throughout a project's life cycle.

iii) Significance

Legalising post-EIA monitoring as a binding duty would close one of the most persistent accountability gaps in Thai environmental governance. At present, developers often treat mitigation conditions as temporary hurdles rather than ongoing responsibilities. By requiring continuous reporting and verification, Section 51 reform would ensure that environmental protection extends beyond the approval stage. The implications are far-reaching: (i) in Phuket, regular third-party testing of wastewater quality could have identified pollutant discharges from overloaded treatment systems before they reached critical levels; (ii) in Koh Samui, systematic groundwater audits could have exposed excessive extraction by resorts during the dry season, allowing authorities to impose early restrictions rather than react to shortages; and (iii) in Chiang Mai, real-time air-quality sensors tied to enforcement triggers could have supported proactive action during the burning season, reducing PM2.5 peaks before they became hazardous.

Such reforms would also increase inter-agency cooperation. A clear division of roles between ONEP, MoNRE, and provincial authorities would streamline inspection and enforcement, while public dashboards would empower citizens to monitor compliance. Public visibility not only increases trust but also creates social pressure for honest reporting, complementing state enforcement with civic oversight. Finally, transparent post-EIA monitoring reinforces Thailand's constitutional duty under Section 58 of the 2017 Constitution, which obliges the State to prevent severe environmental harm and to remedy damage in a fair and timely manner.

iv) Risk & Safeguards

Administrative overload may occur because expanding verification obligations could strain ONEP and local agencies. To prevent bottlenecks, monitoring tasks should be decentralised to provincial offices, with national oversight reserved for high-risk or transboundary cases. Data unreliability is another risk, since developers may submit incomplete or manipulated data. Mandatory third party audits and secure digital submission with time-stamped monitoring data can reduce this risk. Resource constraints also matter, because installing and maintaining real-time monitoring systems requires technical and financial capacity. Costs should be borne by project proponents through an environmental monitoring fee established under ministerial regulation.

Public misinterpretation of data is also possible when open dashboards present highly technical information; ONEP should provide clear explanatory summaries and periodic public briefings to contextualise results. Legal disputes may increase as enforcement strengthens; this can be mitigated through transparent administrative guidelines that define penalties proportionately and allow appeals within clear timelines.

Collectively, these safeguards ensure that stronger monitoring does not become an administrative burden but rather a credible, transparent, and enforceable system that protects both ecosystems and community welfare.

(e) Redistribution of authority and institutional capacity

i) Issue

NEQA centralises environmental assessment and monitoring authority with the ONEP.²¹⁹ Under Section 47, EIA reports are reviewed by national-level expert committees appointed by ONEP²²⁰, and under Section 50, the permitting and inspection process remains under the supervision of these centrally approved committees and officials.²²¹ In practice, this places both decision-making and enforcement entirely in Bangkok. Such concentration of power produces two chronic weaknesses. The first being the delays and backlogs caused by limited national capacity, and second is the detachment from local ecological and social realities. As noted in section 3.5, this disconnect has been particularly visible in tourism-intensive regions. For example, coastal erosion and waste management challenges in Phuket, hillside construction in Koh Samui, and seasonal haze in Chiang Mai all demand place-specific knowledge that central committees cannot adequately supply. The result is a system that is procedurally uniform but substantively blind to local context.

ii) Solution: amend Sections 47 and 50 to establish regional environmental assessment offices

To strengthen responsiveness and institutional capacity, NEQA should be amended to create some kind of regional environmental assessment offices under the supervision of ONEP, empowered to review EIAs and monitor compliance with their jurisdictions; delegate approval powers for medium-scale projects to these regional environmental assessment offices, while

²¹⁹ Enhancement and Conservation of the National Environmental Quality Act B.E. 2535 (1992), sections 47-51.

²²⁰ *ibid*, section 47.

²²¹ *ibid*, section 50.

reserving national-level review for high-risk or inter-provincial developments; authorise ONEP to issue implementing regulations to ensure uniform standards and maintain an appeal process to prevent inconsistent interpretations; and require that minutes, approvals, and dissenting opinions should be published through a national database accessible to the public. This model would shift environmental decision-making closer to where impacts actually occur, without abandoning national oversight.

iii) Significance

Redistributing authority would address the structural bottleneck that currently defines Thai environmental governance. Centralisation in Bangkok slows project approval, weakens enforcement, and excludes the local expertise that is essential to credible decision-making. Establishing regional offices would shorten review times and ensure that project assessments reflect ecological and cultural variation. Local experts are more familiar with seasonal water patterns, land-use conflicts, and community sensitivities, enabling more accurate scoping and mitigation planning.

Decentralisation would also enhance public trust. When people see their provincial representatives and local academics directly involved in review panels, participation becomes meaningful rather than symbolic. Moreover, regional transparency, through published minutes and accessible decisions, would reduce the perception of political interference that eroded confidence after the Map Ta Phut industrial-estate and Mae Moh Lignite power plant controversy.²²² Over time, such reform would bring the EIA system in line with Thailand's constitutional commitment to administrative decentralisation and community participation under Section 249 of the 2017 Constitution²²³ and the Decentralisation Act of 1999, particularly Section 16, 17, 29, 30(5), which collectively empower local authorities to manage resources and environmental protection while ensuring coordination with central agencies²²⁴

iv) Risk & Safeguards

²²² Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p.5, pp. 38-41, 48-52.

²²³ Constitution of the Kingdom of Thailand B.E. 2560 (2017), Section 249.

²²⁴ Thailand, *Determining Plans and Process of Decentralization to Local Government Organization Act, B.E. 2542 (1999)*, sections 16, 17, 29, 30(5).

First, uneven standards may arise if different regions apply varying criteria or levels of scrutiny. ONEP should mitigate this by issuing something like a national review manual defining procedures, thresholds, and documentation requirements, coupled with periodic inter-regional peer review. Second, local capture or conflict of interest may occur if regional officials face pressure from local industries. Rotating membership on review committees and mandatory disclosure of conflicts can preserve independence. Third, capacity gaps are likely in smaller provinces that initially lack experienced personnel; this can be addressed through temporary secondments from ONEP and collaboration with universities until regional expertise is fully established. Fourth, administrative fragmentation can occur without clear division of authority; regional offices should act as implementing arms of ONEP rather than parallel bureaucracies, and a central database for all EIA submissions will maintain policy coherence. Fifth, financial sustainability is essential; regional offices require adequate resources, with funding allocated through the MoNRE existing budget, supplemented by reasonable service fees from project proponents to support local monitoring activities.

4.2.2 Expected Outcomes

Amending NEQA to embed cumulative and strategic assessment would mark a significant evolution in Thailand's environmental governance. It would acknowledge that environmental harm does not occur in isolation but accumulates across projects, policies, and policies, creating long-term effects that extend to future generations. The CIA would capture these broader pressures, while the SEA would allow decision-makers to anticipate them at the policy stage rather than react after damage occurs.

Such structural reform would transform environmental review from a narrow administrative task into a planning instrument that guides how provinces grow, how tourism zones expand, and how natural resources are managed. It would also redefine the relationship between state, market, and community where public participation would become a channel for shared responsibility rather than just a procedural formality. When communities help shape assessments and monitor follow-up, environmental protection ceases to be the state's duty alone and becomes a collective civic function.

In addition, by mandating enforcement, limiting approval validity, and decentralising authority, NEQA would evolve into a living system that learns and adapts. Regional offices would become knowledge centres linking scientific data with local experience; monitoring

results would inform future policy; and transparency would serve as a permanent safeguard against regulatory capture.

Eventually, these reforms would move Thailand toward a governance model grounded in foresight, accountability, and public trust. The outcome would not simply be stronger environmental compliance, but a more resilient balance between economic growth, ecological sustainability, and the well-being of local communities who depend on their environment for livelihoods and identity.

4.3 Compliance with international standards

The reforms proposed in Chapter 4 aim not only to strengthen Thailand’s EIA system but also to align it with global environmental standards. Lessons can be drawn from three key models: (i) the U.S. cumulative assessment framework under NEPA (1969), (ii) the EU SEA Directive, which integrates strategic assessment and public participation, and (iii) Canada’s jurisprudence, which links cumulative impacts to community rights. Together, these examples demonstrate how Thailand’s reforms can reflect international principles of precaution, polluter pays, and public participation, while enhancing environmental governance and strengthening the country’s global reputation for sustainable development.

4.3.1. The United States NEPA Model: Integrating Cumulative and Indirect effects

The NEPA of 1969 remains the foundation of modern environmental governance. More than a procedural statute, NEPA embodies the philosophy that government decisions must be guided by environmental stewardship and intergenerational responsibility. Section 102(2)(C) requires every federal agency undertaking a “major federal action significantly affecting the quality of the human environment” to prepare a detailed environmental impact statement analysing direct, indirect, and cumulative effects, along with alternatives and mitigation measures.²²⁵ The CEQ later clarified under 40 C.F.R. §1508.1(i)(3) that “cumulative impact” refers to the incremental effects of a project “when added to other past, present, and reasonably foreseeable future actions”.²²⁶ This integration of cumulative and indirect effects ensures that environmental evaluation is not limited to isolated projects but captures the broader ecological system they influence.

²²⁵ United States. *National Environmental Policy Act of 1969*. Pub. L. 91-190, 83 Stat. 852, §102(2)(C); codified at 42 U.S.C. §4332(2)(C).

²²⁶ Council on Environmental Quality. *Regulations for Implementing the Procedural Provisions of NEPA*. 40 C.F.R. §1508.1(i)(3).

This cumulative logic is precisely what NEQA lacks. As Chapter 3 established, Thai EIAs assess each project independently, without reference to previous or concurrent developments. The results are visible in areas such as Phuket and Koh Samui, where uncoordinated resort expansion has led to coastal erosion, water scarcity, and declining marine ecosystems. Industrial regions like Rayong reveal similar shortcomings: the Map Ta Phut Industrial Estate case demonstrated that fragmented EIAs failed to anticipate cumulative pollution, forcing the Administrative Court in 2009 to suspend new projects until EHIA were completed.

Embedding cumulative impact assessment as a statutory obligation under NEQA (by mirroring NEPA's Section 102(2)(C)) would therefore close a structural gap. It would also affirm Thailand's commitment to evidence-based prevention, reflecting the precautionary principle discussed in Chapter 2. The aim is not only to improve analytical precision but to institutionalise foresight, ensuring that development choices account for both present needs and long-term ecological resilience. This reform would move Thailand closer to NEPA's original intent: transforming environmental consideration from a bureaucratic step into a moral and legal duty of governance.

4.3.2. EU SEA Directive: Early Participation and Strategic Integration

The EU SEA Directive offers a complementary model that operates at the strategic, rather than project, level. As mentioned previously, Article 3(1) requires Member States to conduct a SEA for all plans and programmes likely to have significant environmental effects²²⁷, while Article 6 mandates “early and effective” public consultation with relevant authorities and the public.²²⁸ By embedding environmental evaluation into policymaking itself, the SEA Directive ensures that environmental concerns are integrated before specific projects are approved. This reflects a preventive, rather than corrective, approach to environmental management.

For Thailand, where EIA processes often occur after project planning is advanced, this proactive approach offers crucial lessons. Adopting SEA within NEQA would allow early assessment of provincial tourism plans, land-use strategies, and infrastructure programmes, helping address systemic problems such as coral reef decline in Phuket, water depletion in Koh Samui, or haze pollution in Chiang Mai before they manifest. The EU model also shows that transparency and

²²⁷ European Parliament and Council of the European Union. *Directive 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. OJ L197, 21 July 2001, article 3(1).

²²⁸ *ibid*, article 6.

continuous monitoring are vital for credibility. Under Article 10 of the Directive, Member States must track and publish the environmental effects of plans once implemented.²²⁹ This obligation is operationalised through the EIONET, which collects, harmonises, and publicly shares data across the Union. Establishing a comparable system under NEQA by linking provincial monitoring offices to a national database would not only enhance enforcement but also align with global norms of environmental transparency.

The SEA Directive also enshrines the public participation principle, treating consultation as a right rather than a formality. Public input must be sought while alternatives are still open, ensuring that affected communities influence the direction of policy rather than merely responding to pre-determined outcomes. In Thailand, this ethos resonates with Section 58 of the 2017 Constitution, which recognises public participation in environmental decision-making²³⁰, but has yet to translate into enforceable practice. Strengthening NEQA in line with Article 6 of the SEA Directive would bridge this gap turning symbolic consultation into a dynamic system.

Finally, the EU model mirrors Thailand's domestic aspiration toward decentralised environmental governance. The Decentralisation Act of 1999 already assigns Local Administrative Organisations (LOAs) responsibility for natural resource and environmental management. Yet, as Chapter 3 revealed, NEQA remains highly centralised under ONEP. Integrating SEA obligations at the provincial and regional levels would therefore not only align Thailand with European best practice but also fulfil its own legislative intent. Environmental assessment would become both participatory and place-based, reflecting local conditions and empowering communities to act as stewards of their own environments.

In essence, adopting an SEA framework informed by the EU experience would anchor Thailand's environmental governance in the precautionary and public participation principles, while complementing the polluter pays principle through greater transparency and accountability. The outcome would be a more coherent, anticipatory, and democratic EIA system that is capable of managing the complex environmental realities of a rapidly developing nation.

²²⁹ *ibid*, article 10.

²³⁰ Constitution of the Kingdom of Thailand B.E. 2560 (2017), section 58.

4.3.3. Canada: *Yahey* case and right based cumulative effects

As previously discussed in section 2.5, Canadian jurisprudence recognises that cumulative environmental degradation can infringe upon constitutionally protected rights. The landmark case *Yahey v. British Columbia* decision exemplified this shift, affirming that cumulative impacts can limit the exercise of Indigenous rights and demanding a new standard of environmental accountability.

The decision transformed the CIA from a procedural requirement into a constitutional safeguard, linking environmental protection with human dignity and the integrity of indigenous culture. This rights-based approach reflects the precautionary principle discussed in Chapter 2. It means that when there is uncertainty about how serious or lasting environmental damage might be, the State has a duty to act early to prevent it before the harm becomes permanent. The *Yahey* court did not just ask for better environmental studies; it ordered the government to stop approving new projects until the environment had clearly recovered. This shows how powerful the precautionary principle can be when it becomes a part of constitutional law, turning caution into a legal duty not just good practice.

For Thailand, the relevance is twofold. First, *Yahey* exposes the danger of assessing projects in isolation which is the exact limitation identified in section 3.3.1 of this paper. Each resort, dam, or factory may pass its individual EIA, yet their combined impacts erode both environmental capacity and community well-being. Second, it illustrates how cumulative impacts are not only ecological but societal, striking at the core of collective rights to health, livelihood, and cultural identity. This logic resonates with Section 58 of the 2017 Constitution, which guarantees public access to information and requires environmental and health impact studies for projects with severe consequences.²³¹ However, without explicit language on community rights (as existed under Section 67 of the 2007 Constitution) these guarantees remain procedural rather than substantive.²³²

²³¹ Constitution of the Kingdom of Thailand B.E. 2560 (2017), section 58.

²³² Constitution of the Kingdom of Thailand B.E. 2550 (2007), section 67; Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp. 56-57.

Furthermore, the Yahey model demonstrates how courts can serve as a balancing mechanism between growth and justice. Judicial enforceability, which requires the State to prove that cumulative sustainability is maintained before new projects are approved, advances both the polluter pays principle and precautionary principles. Developers would have to bear the real costs of long-term environmental damage and plan within measurable ecological limits.

At the same time, the Canadian model highlights the central importance of public participation in rights-based environmental governance. In Yahey, community evidence was decisive; the lived experiences of environmental decline were given equal weight to expert reports. Applying this lesson to Thailand would mean ensuring that local testimony and community-led data form part of every environmental assessment, giving social knowledge the same legitimacy as technical expertise. This approach would reflect the public participation principle from Chapter 2 and bring Thai practice closer to the ideal EIA, a framework that unites law, science, and social justice into a single, credible system of environmental protection.

4.3.4. Restoration of Constitutional Rights Concerning Environmental Development

Thailand's constitutional evolution reflects a shifting relationship between environmental protection, public participation, and community rights. The 2007 Constitution represented a high-water mark for environmental democracy. Section 67 explicitly recognised the right of communities to be consulted and to participate in decision-making for any project "which may seriously affect the quality of the environment, natural resources, and biological diversity".²³³ It required environmental and health impact studies, public consultation, and review by an independent body composed of environmental and health experts. This provision elevated participation from a procedural formality to a substantive right, creating constitutional standing for communities to challenge environmentally harmful decisions.

²³³ Constitution of the Kingdom of Thailand B.E. 2550 (2007), section 67.

By contrast, the 2017 Constitution, while retaining the general duty of the State to assess and mitigate environmental harm under Section 58, omitted key guarantees found in the 2007 framework. It no longer mentions an independent review body, nor does it explicitly refer to community rights or biodiversity protection. The right to a healthy environment remains implied, but not expressly enforceable. As Thai scholars such as Supat Wangwongwatana, Chutarat Chompunth, and Pattajaree Krasaesen have observed, this omission weakens institutional safeguards because the NEQA (1992) itself contains no substantive equivalent to Section 67 in the 2007 Thai Constitution. Supat particularly notes that the absence of constitutional reinforcement leaves NEQA “procedural rather than protective,” dependent on executive discretion rather than citizen entitlement.²³⁴

The result is a constitutional regression: from an era where communities possessed clear participatory leverage to one where participation is at risk of administrative marginalisation. Chompunth’s studies of EIA hearings show that, in practice, public participation has reverted to a symbolic act. Hearings are dominated by consultants and officials, held far from affected villages, and conducted in technical language that excludes ordinary citizens. The 2017 Constitution’s silence on independent oversight has compounded this problem by removing the legal pressure that once required agencies to demonstrate responsiveness to community concerns.²³⁵

This constitutional realignment should operate in harmony with the Decentralisation Act (1999), which empowers local authorities to manage natural resources and environmental protection within their jurisdictions. However, as Chapter 3 showed, the EIA process remains heavily centralised under ONEP. Aligning NEQA with the decentralisation framework would therefore not only fulfil domestic legislative intent but also reflect the international trend toward participatory and place-based environmental governance.

²³⁴ Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), p.57.

²³⁵ Chompunth, Chutarat. “Public Participation Practice within the Environmental and Health Impact Assessment System in Thailand.” *International Journal of GEOMATE*, vol. 19, no. 72, Aug. 2020, pp. 141-143; Pattajaree Krasaesen, Parichart Visvanathan, Supaporn Phongpaichit and others, ‘The Performance of Environmental and Health Impact Assessment Implementation: A Case Study in Eastern Thailand’ (2024) 21 *International Journal of Environmental Research and Public Health*, p. 12; Supat Wangwongwatana, *Assessing Environmental Impact Assessment (EIA) in Thailand: Implementation Challenges and Opportunities for Sustainable Development Planning*, Working Paper (2019), pp. 38,57; Chompunth, Chutarat. “Role of Public Participation in an Environmental Impact Assessment System in Thailand: A Case of Rayong Industrial Estate (Ban Khai).” *NIDA Development Journal*, vol. 60, no. 1-2, 2020, pp.43-48.

Re-anchoring community rights in the Constitution is therefore essential to aligning Thailand's environmental governance with both domestic expectations and international standards. Embedding a clear constitutional guarantee of public participation, access to information, and independent environmental review would operationalise the precautionary principle ensuring preventive action when uncertainty exists about environmental harm. It would also reaffirm the polluter pays principle, by granting citizens the constitutional footing to demand accountability from both state and private actors. Most importantly, it would give real meaning to the public participation principle outlined in Chapter 2, ensuring that environmental decision-making is both democratic and legitimate.

Comparatively, this approach mirrors Canada's evolution toward rights-based environmental governance seen in *Yahey v. British Columbia*, where community testimony became legally determinative.²³⁶ If Thailand were to constitutionally entrench community rights once more, it would not only restore the participatory spirit of 2007 but also elevate environmental protection to a constitutional duty of care. This would bridge the gap between NEQA's procedural mechanisms and the lived realities of citizens in tourism-heavy regions such as Phuket, Koh Samui, and Chiang Mai who are the communities who face environmental degradation but currently lack enforceable recourse.

Ultimately, revising the constitutional framework would do more than restore what was lost. It would signal Thailand's readiness to meet global expectations of transparency, justice, and sustainability. Aligning constitutional rights with the environmental principles discussed in Chapter 2 would reaffirm that environmental protection is not a peripheral administrative concern, but a core expression of national identity, community well-being, and moral responsibility toward future generations.

4.3.5. National Payoffs: reputation, finance, morale, and regional leadership

Alignment with these standards is not just symbolic, it carries practical dividends. Transparency monitoring and cumulative analysis improve investor confidence and access to green finance, since lenders now require demonstrable environmental safeguards. Early and meaningful participation lowers conflict risk and litigation costs, which is directly relevant to tourism provinces where delays are expensive. For residents, a system that listens early and enforces fairly improved

²³⁶ *Yahey v. British Columbia* 2021 BCSC 1287.

morale and trust in public institutions. Internationally, visible compliance with NEPA-like cumulative assessment and EU-style SEA strengthens Thailand's credibility in ASEAN cooperation and climate and biodiversity forums. For a country whose global image is tied to natural beauty and hospitality, legal alignment and on-the-ground practice reinforce each other: better ecosystems, strong community well-being, and a tourism brand association with responsibility rather than degradation.

Chapter 5: Conclusion

Picture the shoreline at dusk, and the tide pulls back to reveal what the daylight edits out. Footprints, litter, broken coral, and a faint line of oil. Thailand's EIA, written in 1992, has spent three decades looking at footprints one by one while the sea has been telling a larger story. The law counts projects; nature absorbs patterns. That mismatch has left enforcement thin, participation polite, and monitoring forgettable. It has also left communities sceptical. Phuket's aquifers strain, Koh Samui's reefs pale, Chiang Mai breathes through a mask. The costs arrive quietly, then all at once.

This study does not argue for more paperwork. It argues for sharper vision. In the near term, the government can act within NEQA as it stands: calibrate screening to capture clustered tourism, shift initial review to regional bodies with clear oversight, demand plain-language disclosure and real community validation, and turn monitoring into something measurable, verifiable, and public. These are not heroic acts. They are administrative decisions that align the process with what the environment is already experiencing.

The structural change must be legislative. The statute should say what the science already knows and what communities already feel: cumulative effects are real and legally relevant. The long-term course is therefore precise and numbered. It requires:

- (i) Inserting a statutory definition of cumulative environmental impacts and a legal duty to assess them;
- (ii) Legalising SEA for plans and programmes so projects are judged against strategic baselines and real alternatives;
- (iii) Rebalancing expertise and participation by amending Section 48 and 49 to connect consultant analysis with local knowledge through validation sessions and documented responses;
- (iv) Making post-EIA monitoring and enforcement legally binding with explicitly penalties;
and
- (v) Restructuring authority so empowered regional and provincial institutions implement national standards with local precision.

At the constitutional level, restoring explicitly community environmental rights, as recognised in 2007, would do more than signal intent. It would create justiciable duties on the State to prevent cumulative harm, guarantee access to information and participation with real consequence, recognise standing for affected communities, and anchor precaution, polluter pays (AKA accountability) as enforceable obligations rather than policy preferences. With these rights in place, ministerial rules and NEQA mechanisms would no longer depend on voluntary practices by administrators but on enforceable constitutional duties, measures against standards of prevention, transparency, and accountability and reviewable by courts when they fall short.

What follows if we choose this path? Fewer surprises. Courtroom battles, fewer crises disguised as approvals. A planning system that anticipates instead of apologies. Tourism that protects the very places it sells. Investors who understand the rules because the rules are written in data and daylight. What follows if we do not? More permits that look lawful on paper and catastrophic in practice. More fragmented baselines, more seasonal haze, more brittle reefs, more groundwater pulled faster than it returns. Trust will thin first. Then margins. Then options.

There is a moment in every tide when the water stops moving. Not rising. Not falling. Still. That is where Thailand stands now. If NEQA is updated along recommendations (i) to (v), the EIA will stop being a checklist and become a compass, aligning policy, investment, and community confidence in the same direction. The law will learn to see the whole coastline, not just the footprints upon it.

Let this be the chapter where the credits do not roll over another warning. Let it be the turn. The one where Thailand chooses to govern the future it is building, and to leave the next generation not a ledger of mitigations, but living reefs, clear air, and water that returns because we planned for it to.

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