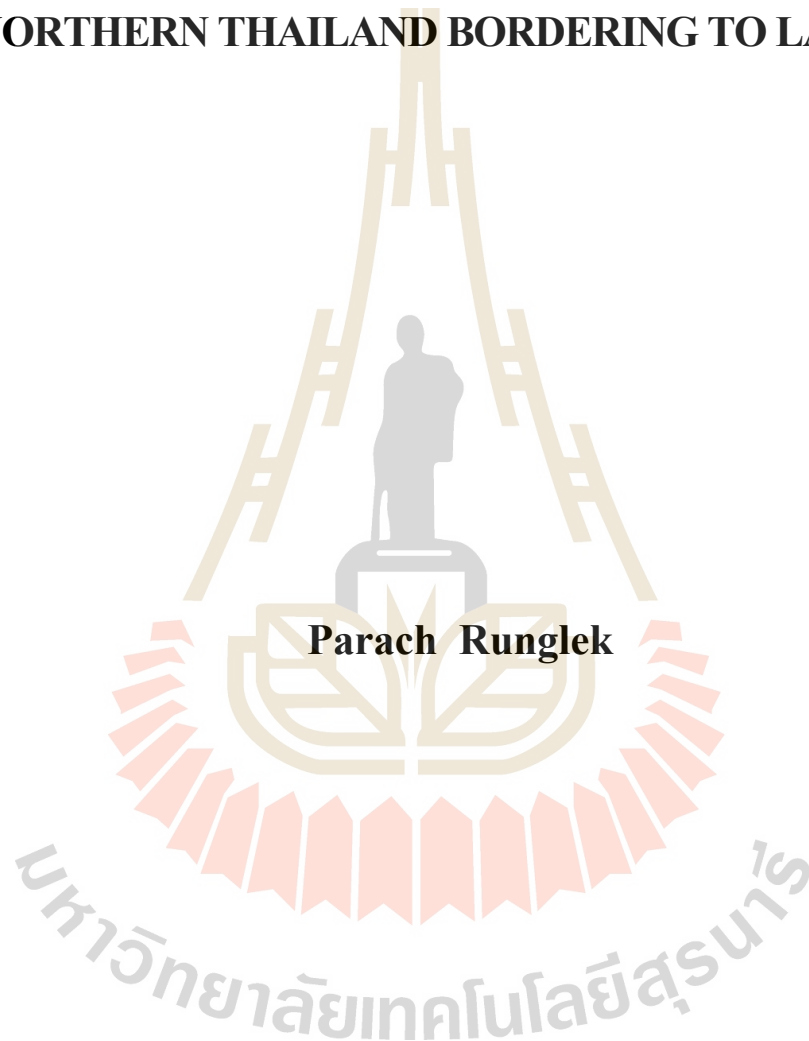


**CONSIDERING THE CONCEPT OF ESPOO CONVENTION
AS A TOOL FOR TRANSBOUNDARY ENVIRONMENTAL
IMPACT ASSESSMENT IN ASEAN COUNTRIES: A CASE
OF NORTHERN THAILAND BORDERING TO LAO PDR**



**A Thesis Submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Environmental Pollution and Safety
Suranaree University of Technology
Academic Year 2024**

การใช้หลักการของปฏิญญาเอสปู (Espoo Convention) เป็นเครื่องมือในการ
ประเมินผลกระทบสิ่งแวดล้อมข้ามพรมแดนสำหรับประเทศในกลุ่มอาเซียน:
กรณีศึกษาพื้นที่ชายแดนประเทศไทยทางตอนเหนือฝั่งติดกับประเทศลาว



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชามลพิษสิ่งแวดล้อมและความปลอดภัย

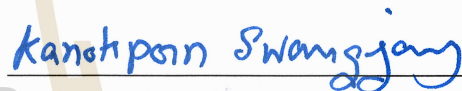
มหาวิทยาลัยเทคโนโลยีสุรนารี

ปีการศึกษา 2567

Considering the concept of Espoo Convention as a tool for transboundary environmental impact assessment in ASEAN countries: a case of northern Thailand bordering to Lao PDR

Suranaree University of Technology has approved this thesis submitted in partial fulfilment of the requirements for a Master's Degree

Thesis Examining Committee



(Prof. Dr. Kanokporn Swangjang)

Chairperson



(Assoc. Prof. Dr. Chaunjit Chanchitpricha)

Member (Thesis Advisor)



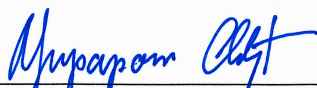
(Prof. Dr. Alan J. Bond)

Member (Thesis Co-advisor)



(Asst. Prof. Dr. Siraporn Potivichayanon)

Member



(Assoc. Prof. Dr. Yupaporn Ruksakulpiwat)

Vice Rector for Academic Affairs and Quality Assurance



(Asst. Prof. Dr. Chalalai Hanchenlaksh)

Dean of Institute of Public Health

ปารัช หรั่งเล็ก: การใช้หลักการของปฏิญญาเอสปู (Espoo Convention) เป็นเครื่องมือในการประเมินผลกระทบสิ่งแวดล้อมข้ามพรมแดนสำหรับประเทศในกลุ่มอาเซียน: กรณีศึกษาพื้นที่ชายแดนประเทศไทยทางตอนเหนือฝั่งติดกับประเทศลาว

อาจารย์ที่ปรึกษา : รองศาสตราจารย์ ดร.ชื่นจิต ชาญชิตปรีชา, 233 หน้า

คำสำคัญ: การประเมินผลกระทบสิ่งแวดล้อมข้ามพรมแดน (TEIA) ปฏิญญาเอสปู ความตกลงอาเซียน การพัฒนาอย่างยั่งยืน

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อดำเนินการวิเคราะห์ประเด็นที่แตกต่างและช่องว่าง (Gap analysis) ระหว่างประสบการณ์ในการดำเนินการตามปฏิญญาเอสปูของประเทศที่ให้สัตยาบัน กับประสบการณ์ที่มีการดำเนินการในบริบทของประเทศสมาชิกอาเซียน เพื่อวิเคราะห์แนวทางที่เป็นไปได้สำหรับการประเมินผลกระทบสิ่งแวดล้อมข้ามพรมแดน (Transboundary Environmental Impact Assessment: TEIA) ในประเทศไทยและในบริบทของประเทศสมาชิกอาเซียน การศึกษานี้ใช้ระเบียบวิธีวิจัยเชิงคุณภาพ ประกอบด้วย 4 ขั้นตอน ได้แก่ (1) การวิเคราะห์เอกสารเกี่ยวกับความท้าทายและแนวทางแก้ไขของ TEIA โดยอ้างอิงจากการดำเนินงานตามอนุสัญญาเอสโป (ซึ่งศึกษาผ่านรายงานแบบสอบถามที่คัดเลือกมา 16 ฉบับและรายงานจากคณะกรรมการดำเนินการที่คัดเลือกมาอีก 6 ฉบับ) และประสบการณ์จากบริบทของอาเซียน โดยเฉพาะกรณีความร่วมมือระหว่างไทย-สปป.ลาว (ศึกษาผ่านวรรณกรรมที่เกี่ยวข้องและประสบการณ์ที่คัดเลือกมา 3 กรณีศึกษา); (2) การกำหนดรหัสข้อมูลโดยใช้แนวทางแบบผสมผสานระหว่างการอนุมานเชิงนิรนัยและอุปนัย เพื่อรวมกรอบงานที่มีอยู่และข้อมูลเชิงลึกที่เกิดขึ้นใหม่; (3) การวิเคราะห์แนวคิดหลักเพื่อระบุประสบการณ์ ความท้าทาย ข้อจำกัด และประเด็นสำคัญที่มีผลต่อการดำเนินงานของ TEIA; และ (4) การวิเคราะห์ประเด็นที่แตกต่างระหว่างประสบการณ์การดำเนินการภายใต้ปฏิญญาเอสปู กับสถานการณ์ปัจจุบันในบริบทของประเทศสมาชิกอาเซียน เพื่อจัดทำข้อเสนอแนะสำหรับการดำเนินการพัฒนากระบวนการ TEIA ในบริบทของอาเซียน โดยในกระบวนการดังกล่าวได้ใช้โปรแกรม Microsoft Excel ร่วมกับซอฟต์แวร์ NVivo 14 สำหรับการจัดการ จัดระเบียบ และวิเคราะห์ข้อมูล

จากการศึกษาพบว่าปฏิญญาเอสปูเป็นเครื่องมือทางกฎหมายที่มีความครอบคลุมในการจัดการกับผลกระทบข้ามพรมแดนสำหรับประเทศสมาชิก อย่างไรก็ตาม ในทางปฏิบัติสำหรับบริบทของรัฐสมาชิคนั้น ยังคงมีอุปสรรคบางประการที่ขัดขวางการบรรลุปัจจัยหลักในการดำเนินการ TEIA ภายใต้ปฏิญญาเอสปู ได้แก่ ความแตกต่างของกฎหมายระดับชาติที่เกี่ยวข้องกับกระบวนการประเมินผลกระทบต่อสิ่งแวดล้อม ความแตกต่างของภาษาทางการในการสื่อสารระหว่างกัน และ มุมมองเกี่ยวกับประเด็นของผลกระทบข้ามพรมแดนระหว่างภาคีแหล่งกำเนิดและภาคีที่ได้รับผลกระทบที่ต่างกััน ดังนั้น เพื่อจัดการกับปัญหาเหล่านี้ ความร่วมมือระหว่างประเทศจึงเป็นปัจจัยหลักที่มีความสำคัญและเป็นพื้นฐานของกระบวนการสร้างความร่วมมือ (เช่น การปรึกษาหารือระหว่างภาคีทั้งสองฝ่าย หรือการพัฒนาข้อตกลงทวิภาคีหรือพหุภาคี) ซึ่งนำไปสู่การปรับปรุงกระบวนการตัดสินใจเพื่อให้เกิดการพัฒนาที่เป็นมิตรกับสิ่งแวดล้อมและยั่งยืน ในทางตรงกันข้าม ข้อค้นพบประเด็นด้านการจัดการผลกระทบข้ามพรมแดนในบริบทของประเทศสมาชิกอาเซียนนั้น ข้อตกลงในการจัดการกับผลกระทบข้ามพรมแดนที่มีอยู่ยังคงเผชิญอยู่กับความท้าทายและยังไม่ประสบความสำเร็จมากนัก เนื่องจากกลไกทางกฎหมายที่มีข้อจำกัดและการยึดมั่นในหลักการที่ประเทศสมาชิกจะไม่แทรกแซงกัน หรือ ตามที่มีการวิเคราะห์ว่าวิถีดังกล่าวเป็นความปกติของ "วิถีอาเซียน"

นอกจากนี้ ผลการศึกษาแสดงให้เห็นถึงความแตกต่างที่เกิดขึ้นในการจัดการกับผลกระทบข้ามพรมแดน โดยเฉพาะในบริบทของประเทศไทย ที่ขาดกรอบกฎหมายและเครื่องมือที่มีความเฉพาะในการจัดการกับปัญหาข้ามพรมแดน จึงนำไปสู่การกำหนดแผนการดำเนินการสำหรับกระบวนการ TEIA ในบริบทของอาเซียน ซึ่งอาจจะมีส่วนในการเสริมสร้างกรอบกฎหมายเพื่อให้เป็นรากฐานที่ดีในการกำหนดกรอบสำหรับกระบวนการเจรจาระดับภูมิภาค และส่งเสริมความร่วมมือในระดับภูมิภาคเพื่อให้สอดคล้องกับเป้าหมายของข้อตกลง นอกจากนี้ การเสริมสร้างเครื่องมือทางกฎหมายทั้งในระดับชาติและระดับภูมิภาค ควบคู่ไปกับการปรับแนวทางเหล่านี้ให้สอดคล้องกับวิถีอาเซียนถือเป็นสิ่งสำคัญสำหรับการพัฒนาที่ยั่งยืนและการประเมินผลกระทบข้ามพรมแดนที่มีประสิทธิภาพในภูมิภาค

สาขาวิชา มลพิษสิ่งแวดล้อมและความปลอดภัย

ปีการศึกษา 2567

ลายมือชื่อนักศึกษา พัทธ์ นิ่งเล็ก

ลายมือชื่ออาจารย์ที่ปรึกษา ปิรัช ปิรัช

PARACH RUNGLEK: CONSIDERING THE CONCEPT OF ESPOO CONVENTION AS A TOOL FOR TRANSBOUNDARY ENVIRONMENTAL IMPACT ASSESSMENT IN ASEAN COUNTRIES: A CASE OF NORTHERN THAILAND BORDERING TO LAO PDR THESIS ADVISOR: ASSOC. PROF. CHAUNJIT CHANCHITPRICHA, Ph.D. 233 PP.

TRANSBOUNDARY ENVIRONMENTAL IMPACT ASSESSMENT (TEIA), THE ESPOO CONVENTION, ASEAN AGREEMENT, THAILAND, SUSTAINABLE DEVELOPMENT

The study aims to conduct a gap analysis by comparing the experiences of Espoo Convention implementation in ratified countries with the ASEAN context (focusing on northern Thailand bordering Lao PDR) in dealing with transboundary impact to establish a roadmap to apply the principles of transboundary environmental impact assessment (TEIA) under the Espoo Convention in the context of ASEAN member states. This study employed a qualitative research methodology comprising four steps: (1) documentary analysis of TEIA challenges and solutions based on Espoo Convention implementation (investigated through 16 questionnaire cases, 6 committee reports) and ASEAN experiences, particularly Thailand–Lao PDR (examined through relevant literature and 3 selected experiences); (2) data coding using a hybrid deductive-inductive approach to integrate existing frameworks and new insights; (3) thematic analysis with NVivo 14 software to identify experiences, challenges, limitations, and key issues influencing TEIA implementation; and (4) gap analysis to compare the desired outcomes of TEIA implementation under the Espoo Convention with the current situation in ASEAN member countries, leading to the development of a roadmap for strengthening TEIA in the ASEAN context.

The study found that the Espoo Convention is a comprehensive legislative instrument in dealing with transboundary impact, but in the member state context, in practice, there are still some obstacles to achieving the key aspects of TEIA under the Convention, namely differences in national EIA laws, official languages, or perspective on the transboundary context between the Party of Origin and Affected Parties. In order to deal with these problems, international cooperation is therefore a key aspect that is important as the basis of the cooperation-building process (i.e., consultations between the parties or developing bilateral or multilateral agreements) for leading to improved decision-making processes for ensuring environmentally sound and sustainable development. In contrast, in ASEAN countries, existing agreements still face challenges and have not been very successful due to limited legislative mechanisms and adherence to the principle of non-interference, known as the ASEAN way.

This has led to gaps in dealing with transboundary impacts, especially in Thailand, lacking specific legislative frameworks and instruments to deal with transboundary issues. Therefore, it leads to a roadmap for implementing TEIA in an ASEAN context, in which strengthening legislative frameworks will be a good foundation for regional dialogue to promote regional cooperation for aligning with the goal of the ASEAN agreements. Moreover, strengthening both national and regional legislative tools in parallel with adapting them to the ASEAN way is essential for advancing sustainable development and effective TEIA in the region.

School of Environmental Pollution and Safety Student's signature Parach Runglek

Academic Year 2024

Advisor's signature Chaunjit C.

ACKNOWLEDGMENT

In 2021, I hesitated to pursue a master's degree due to doubts about my abilities and uncertainty whether I could meet the challenge or not. Despite this hesitation, I decided to pursue a master's degree, focusing on the complex topic of transboundary environmental impact assessment (TEIA). It was an unfamiliar area, and I often questioned myself, "Is this beyond my ability?" Today, I have proven to myself that I can achieve this goal and realised that it is exceeding my initial expectations. This success would not have been possible without the important people behind the scenes who have guided, supported, and encouraged me throughout this journey. I am deeply grateful to Assoc. Prof. Dr. Chaunjit Chanchitpricha, my thesis advisor, who has been instrumental in providing invaluable guidance, concepts, and a framework for developing this thesis. Her support extended to various resources, including tools, funding (as granted by Health System Research Institute), and access to hard-to-find experiences. I would also like to thank Assoc. Prof. Dr. Alan J. Bond for generously contributing his time to offer valuable ideas and approaches, which significantly enhanced the completeness and quality of this thesis.

I sincerely thank my thesis proposal examiners for their valuable recommendations in developing my thesis. I would also like to express my deep gratitude and appreciation to my thesis committee examiners, Prof. Dr. Kanokporn Swangjang and Asst. Prof. Dr. Siraporn Potivichayanon, for honoring me with their presence as examiners in my thesis defense. Their insightful comments, guidance, and

corrections have significantly contributed to the completeness of this thesis.

Thanks to Suranaree University of Technology (SUT) for supporting my scholarship during the first two years through the Graduate Degree Scholarship for Undergraduate Students with Academic Achievement, which played a key role in supporting my academic endeavors.

Throughout the development of this thesis, I have been supported by the unwavering encouragement of my beloved family—my mother, father, and brother—who have always unwavering belief in me and provide invaluable motivation. I would also like to thank my grandpa and uncle for their financial support. Moreover, the important positive energy, the members of M.Sc. Envi, whose made my journey as a master's student more vibrant and fulfilling. Thank you to my beloved, who always provided me with support. Even on the hardest days, he was by my side. I am also grateful to my beloved artist, who helped me get through the most difficult times.

And most importantly, I want to thank myself for deciding to pursue a master's degree and for never giving up, even during moments of discouragement, stress, tears, and exhaustion. Despite the challenges, I always pulled myself together to keep going, developed my potential, and brought myself to this point. I am truly proud of myself and want to say, well done! Lastly, to my late grandmother, even though you are no longer here to witness my success, you have always been my source of strength and inspiration.

Parach Runglek

CONTENTS

	Page
ABSTRACT (THAI)	I
ABSTRACT (ENGLISH)	III
ACKNOWLEDGMENT	V
CONTENTS	VII
LIST OF TABLES	XIV
LIST OF FIGURES	XIX
ABBREVIATION	XXII
CHAPTER	
1. INTRODUCTION	1
1.1 Rationality and background	1
1.2 Research objectives	5
1.3 Research questions	5
1.4 Scope of research	6
1.5 Expected results	7
2. LITERATURE REVIEWS	8
2.1 Transboundary environmental impact assessment	8
2.1.1 What is transboundary impact	8
2.1.2 Transboundary environmental impact assessment (TEIA)	9

CONTENTS (continued)

	Page
2.2 Convention on Environmental Impact Assessment in a Transboundary Context (The Espoo Convention)	11
2.2.1 List of activities for screening step	13
2.2.2 Procedure of the Espoo Convention	16
2.2.3 Operationalizations of the Espoo Convention	18
2.2.4 Relevant agreement on the Espoo Convention	24
2.3 Experiences on transboundary environmental impact assessment	26
2.4 Key issues related to the effectiveness of transboundary environmental impact assessment	28
2.4.1 Procedural effectiveness	28
2.4.2 Key issues related to the effectiveness of transboundary environmental impact assessment	29
2.5 Transboundary agreement in ASEAN context	34
2.5.1 ASEAN Agreement on Transboundary Haze Pollution 2002	36
2.5.2 Agreement on the cooperation for the sustainable development of the Mekong River basin 1995	39
2.5.3 Application of the Transboundary Agreement in the ASEAN Context	46

CONTENTS (continued)

	Page
2.6 Experiences related to transboundary impact issues in the context of Thailand (focusing on northern Thailand bordering to Lao PDR and TbEIA experience)	50
2.7 Overviews of IA system in Thailand and Lao PDR	51
2.7.1 Environmental Impact Assessment (EIA)	51
2.7.2 Strategic Environmental Assessment (SEA)	52
2.7.3 EIA procedure in Thailand	55
2.7.4 EIA procedure in Lao PDR	57
2.7.5 IA system of Thailand vs. Lao PDR	60
2.8 Comparison of the Espoo Convention and current ASEAN agreements	64
2.9 Summary	70
3. METHODOLOGY	72
3.1 Research conceptual framework	73
3.2 Research design and methodology	74
3.3 Source of data	76
3.4 Data collection	78
3.4.1 Implementation under the Espoo Convention in both UNECE and non UNECE member countries	78
3.4.2 ASEAN Experiences in dealing with transboundary issues	85

CONTENTS (continued)

	Page
3.4.3 Learning from the experiences implementing the Espoo Convention: sketching a framework for gap analysis	89
3.5 Data preparation and reduction	92
3.6 Data analysis	92
3.6.1 Preparing initial data	93
3.6.2 Data coding	94
3.6.3 Thematic analysis	95
3.7 Data validation	96
3.8 Summary	97
4. RESULTS AND DISCUSSION: Implementation experiences of Espoo Convention in Ratified Countries	99
4.1 Experiences in dealing with transboundary impact	99
4.2 TEIA procedure under the Espoo Convention: Lesson learned	117
4.3 Key issues influencing the achievement of TEIA procedure under the Espoo Convention in both UNECE and non-UNECE member states	125
4.4 Key aspect for implementing the TEIA procedure under the Espoo Convention	132
4.5 Summary	134

CONTENTS (continued)

	Page
5. RESULTS AND DISCUSSION: Transboundary environmental impact issues in the context of ASEAN (focusing on Thailand bordering to Lao PDR)	136
5.1 Current agreements related to transboundary impact issues in ASEAN	137
5.1.1 ASEAN agreement on transboundary haze pollution (AATHP)	137
5.1.2 Agreement on the cooperation for the sustainable development of the Mekong River basin	139
5.2 The Thai context in dealing with transboundary impact issues (focusing on northern Thailand bordering to Lao PDR)	142
5.2.1 Experiences in dealing with transboundary impact in Thailand (focusing on northern Thailand bordering to Lao PDR)	142
5.3 Key issues influencing the achievement of transboundary environmental impact assessments in ASEAN context	155
5.4 Summary	163

CONTENTS (continued)

	Page
6. RESULTS AND DISCUSSION: Lessons learned from the Espoo Convention for the ASEAN context	165
6.1 Lessons learned from the implementation of the Espoo Convention for the ASEAN context	166
6.2 Key issues influencing the achievement of transboundary impact assessment	171
6.3 Generating a roadmap for TEIA implementation in the Thai context based on key aspects as learned from the implementation of the Espoo Convention	175
6.4 Summary	181
7. CONCLUSIONS AND RECOMMENDATIONS	184
7.1 Espoo Convention implementation experiences	185
7.2 ASEAN experiences regarding transboundary environmental impact management	185
7.3 Lessons learned from the implementation of the Espoo Convention	186
7.4 Reflecting on research methodology	188
7.5 Recommendations	189
7.5.1 Recommendations for policy	189
7.5.2 Recommendations for Future Research	189

CONTENTS (continued)

	Page
REFERENCES	191
APPENDICES	208
APPENDIX A: The status of ratification of the Espoo Convention	209
APPENDIX B: Implementation approach of the Mekong River Basin indicator framework (MRB-IF)	210
APPENDIX C: The template of questionnaire report on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	214
APPENDIX D: Data analysis through hybrids coding under NVivo 14 software	217
APPENDIX E: Summary of data from the questionnaire reports	221

List of Tables

Table		Page
2.1	Definition of transboundary environmental impact assessment (TEIA) or transboundary impact assessment (TIA) based on literature reviews	9
2.2	Example experiences on Transboundary environmental impact assessment (TEIA)	10
2.3	Objectives in each Article or Appendix under the Espoo Convention	13
2.4	List of activities on Appendix I of the Espoo Convention	14
2.5	Details and criteria in Appendix III of the Espoo Convention	16
2.6	The data to be obtained from the questionnaire for the Report of the Parties on Implementation	22
2.7	The key objectives and issues of transboundary agreements in ASEAN context	35
2.8	Objectives in each Chapter under the Asean Agreement on Transboundary Haze Pollution (AATHP)	37
2.9	Objectives in each Chapter under the Agreement on the cooperation for the sustainable development of the Mekong River Basin	41
2.10	Example of tools for facilitating the TbEIA process under the Mekong agreement	43

List of Tables (continued)

Table	Page	
2.11	Definition of Environmental impact assessment (EIA)	52
2.12	Comparative between SEA and EIA	54
2.13	Overview of EA legislation, responsible institutions and authority, and tools of EIA between Thailand and Lao PDR	63
2.14	Weaknesses and strengths of EA systems between Thailand and Lao PDR context	63
2.15	The key elements focused on the Espoo Convention, ASEAN Agreement on Transboundary Haze Pollution (AATHP) and Mekong River Agreement	66
2.16	Comparative list of activities between Espoo convention, Thailand's EIA, and Lao PDR's EIA	68
3.1	Research question, data source, collection, and analysis	75
3.2	Categories and sources or references of documents investigated in this study under the inclusion criteria	77
3.3	Selected questionnaire reports for investigating experience of implementation under the Espoo Convention	81
3.4	The Implementation Committee report selected for investigating experience of implementation under the Espoo Convention	84
3.5	Relevant literature having reviewed the experiences in ASEAN transboundary impact	86

List of Tables (continued)

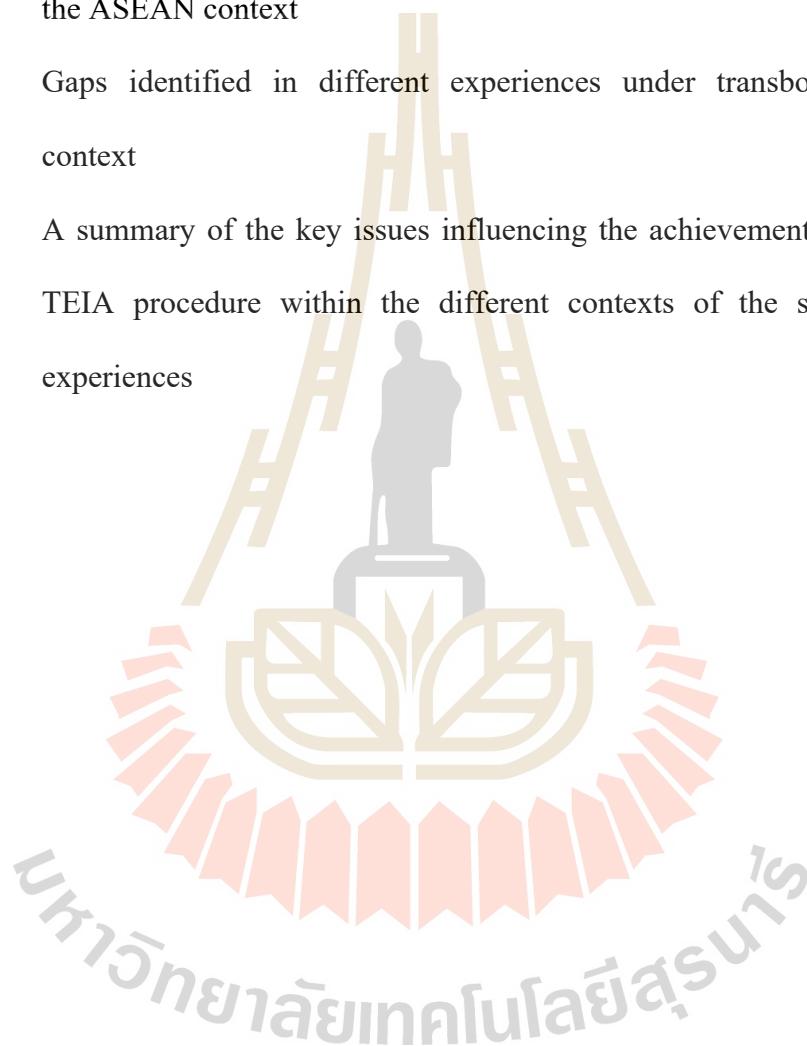
Table	Page
3.6 Selected experiences in dealing with transboundary impact in the Thai context	88
3.7 Concerns and potential impacts of project operation based on selected experiences	89
3.8 Key issues for gap analysis	90
3.9 Gap analysis framework for identifying gaps in different experiences under transboundary context	91
4.1 Issues derived from experiences in addressing transboundary impacts within the context of the Espoo Convention based on selected 16 experiences of the questionnaire reports and 6 implementation committee reports	100
4.1a The responses of the 16 questionnaire reports towards Article 1 of Part 1 Current legal and administrative framework for the implementation of the Convention (concise version)	102
4.2 Definition of transboundary impact under the questionnaire responses	103
4.1b The responses of the 16 questionnaire reports towards Article 1 of Part 1 Current legal and administrative framework for the implementation of the Convention (concise version)	105

List of Tables (continued)

Table		Page
5.1	Comparative issues in the Espoo Convention implementation experiences and ASEAN experiences and existing solutions	141
5.2	Findings established from investigating the selected cases in ASEAN context	143
5.3	Issues arising from experiences under the selected cases investigated in (T)EIA practice	144
5.4	Summary of findings and key issues arising from Thailand's experiences related to the selected cases (derived based on inductive coding)	146
5.5	Overview of database website related to transboundary in ASEAN context (focusing on Thailand)	149
5.6	Key issues related to the Espoo Convention having been considered in the selected 3 cases in the Thai-Lao PDR context	156
5.7	Key issues influencing the achievement of TEIA based on selected experiences	157
6.1	Key issues along with solutions investigated from experiences in dealing with transboundary impacts within the context of implementing the Espoo Convention versus practices related to transboundary impact issues in the ASEAN context	168

List of Tables (continued)

Table		Page
6.2	Derived lessons learned from the Espoo Convention translated into the ASEAN context	169
6.3	Gaps identified in different experiences under transboundary context	170
6.4	A summary of the key issues influencing the achievement of the TEIA procedure within the different contexts of the selected experiences	172



List of Figures

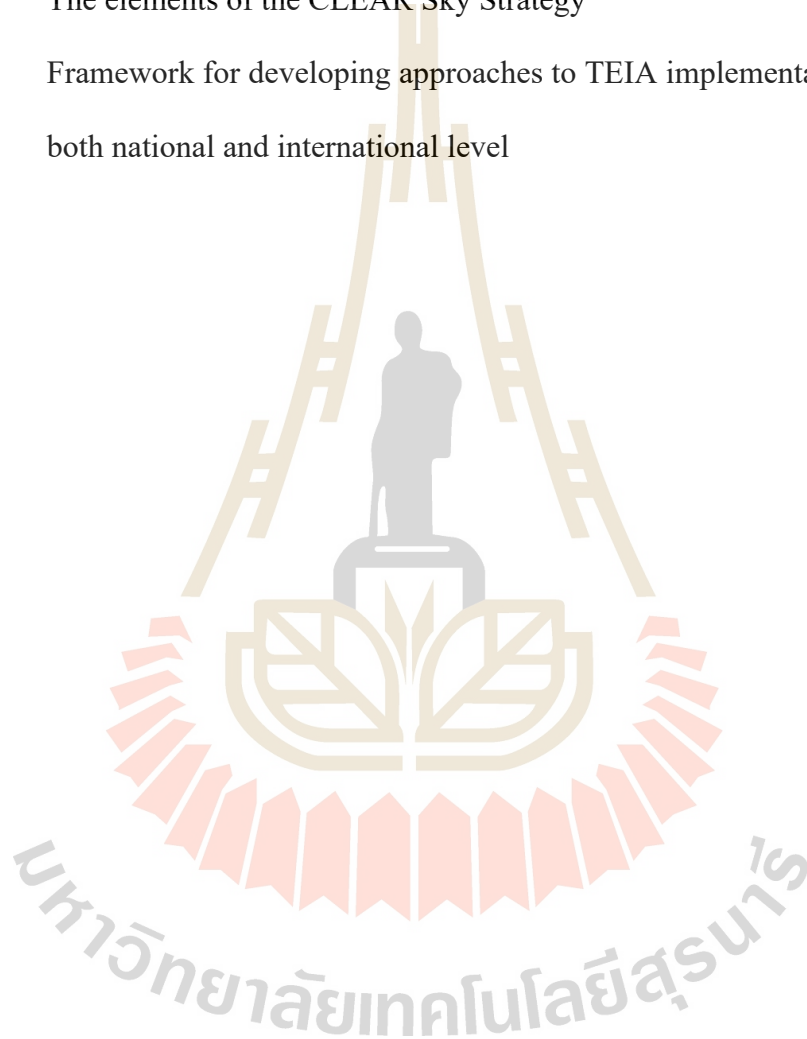
Figure		Page
2.1	The main goal of the Espoo Convention	12
2.2	The procedure steps of the Espoo Convention	17
2.3	Procedure for obtaining the implementation committee report	20
2.4	The process of responding to the questionnaire for the Report of the Parties on Implementation	21
2.5	Key issues related to the effectiveness of transboundary environmental impact assessment under the Espoo Convention	30
2.6	Relation between principle and general provision under the Asean Agreement on Transboundary Haze Pollution	38
2.7	Topography and physiographic zones of the Mekong River Basin	39
2.8	PNPCA procedure for MRC member states	45
2.9	EIA procedure in Thailand	56
2.10	EIA procedure in Lao PDR	58
2.11	EIA procedure between Thailand and Lao PDR	61
3.1	Research conceptual framework	73
3.2	Selected experiences of the implementing the Espoo Convention in ratified countries	80
3.3	Example of questionnaire report completed by the Parties	82
3.4	Example of the implementation committee report	83

List of Figures (continued)

Figure	Page
3.5	Inputting data into Nvivo 14 software 93
3.6	Step to develop deductive codes 94
3.7	Data analysis through hybrid coding under NVivo 14 software 96
4.1	Different way to determine significant adverse transboundary impact 105
4.2	Approach to identify Affected Party determined by the party responding through the questionnaire report 108
4.3	The specified approach under their national legislation related to ensure the equivalent opportunities and the right to participate in the procedure 111
4.4	The consequences when the Affected Party does not comply with the timeframe for responding to the notification 113
4.5	The iceberg model in translation and language issues 115
4.6	Mapping of key issues under the TEIA procedure that need special consideration 117
4.7	Transboundary consultations in their national EIA legislation 123
4.8	Issues included in elements of bilateral or multilateral agreements 132
5.1	The database website serves as a crucial tool for disseminating the project's findings 150
5.2	The ASEAN Haze Portal platform 152
5.3	Fine-Resolution Forecast Products of Fire Danger Rating platform 152

List of Figures (continued)

Figure		Page
5.4	A tool for promoting a self-monitoring platform	154
5.5	The elements of the CLEAR Sky Strategy	161
6.1	Framework for developing approaches to TEIA implementation in both national and international level	177



ABBREVIATIONS

EIA	Environmental Impact Assessment
SEA	Strategic Environmental Assessment
TEIA	Transboundary Environmental Impact Assessment
TbEIA	Transboundary Environmental Impact Assessment under the Mekong Agreement
UNECE	United Nations Economic Council on Europe
PO	Party of Origin
AP	Affected Party
ASEAN	The Association of Southeast Asian Nations
AATHP	The ASEAN Transboundary Haze Pollution
PNPCA	The Procedures for Notification, Prior Consultation and Agreement

CHAPTER 1

INTRODUCTION

1.1 Rationality and background

In developing countries, the governments often prioritise socioeconomic development policies on the investment of infrastructure and mega-project development as key driving mechanisms in promoting national economic growth. According to the vision that ASEAN Connectivity 2025 aims *"to achieve a seamlessly and comprehensively connected and integrated ASEAN that will promote competitiveness, inclusiveness, and a greater sense of community"* (ASEAN, 2016a, p. 9), in line with its Master Plan and the ASEAN Economic Community Blueprint 2025. The main objective of the plan is to enhance economic connectivity involving various sectors, namely, transport infrastructure to expand economic opportunities and services to provide people with access and mobility across the region (ASEAN, 2015, 2016a). Additionally, energy infrastructure development has been planned to enhance energy connectivity and market integration in ASEAN for energy security, accessibility, affordability, and sustainability for all as a key enabler in the full potential attainment of regional economic integration (ASEAN, 2015). Obviously, infrastructure development is always prioritised in the National Economic Development Plan among ASEAN member countries, aiming to support economic growth and attract international investment. This suggests that infrastructure developments in various

sectors are considered influential on the achievement of economic stability. Although the proposed development policies (or plans/ projects) could help improving quality of life of the people and boosting economic growth, such developments could potentially lead to unwanted adverse impacts. Infrastructure developments in various sectors developed in territory zones may cause emitted pollutants that transport across borders, while in many cases, the natural resources are shared by people around the territories (Bastmeijer & Koivurova, 2008). This suggests that the development should be conducted carefully.

SEA Directives has been applied in member states of the European Commission, while the convention on environmental impact assessment (EIA) in a transboundary context (Espoo Convention) is taken into account among UNECE countries. Meanwhile, in the ASEAN countries, this concept has not been yet applied explicitly while it is clear that transboundary impact could occur across the borders. Transboundary environmental impacts can occur in various dimensions and are likely to cause adverse impacts on human health and environmental changes, e.g., air pollution and water resources, the disease pandemic, and biodiversity loss (Organization, 2022; Ukwe & Ibe, 2010; UNECE, 2008; Zhao et al., 2021). On various occasions, it could possibly create conflicts between affected people in the country of origin and its territories if measures are not provided to mitigate environmental and health impacts. Therefore, legislative instruments could play a vital role in ensuring that the assessment, forecasting, and mitigation of transboundary impacts are carried out systematically, consistently in an environmentally sound manner towards sustainable development, despite different impact assessment systems in each country (Marsden, 2011).

Therefore, the 1991 Convention on Environmental Impact Assessment in a Transboundary Context (The Espoo Convention) was promoted by the United Nations Economic Council on Europe (UNECE) to introduce specific rules to involving nations that are members of the European Union (EU) or have ratified to the Convention; in conducting an EIA of activities located on the contracting party's territory (Article 2). This is aimed to prevent, reduce, control, and mitigate both significant adverse transboundary impacts on the environment, health, and interstate conflicts (UNECE, 1991, 2017a) . Moreover, the infrastructure developments are related to Appendix I and III of the Espoo Convention, which contains the lists of activities that must undergo a TEIA. It was observed that the Espoo Convention has thus become an important instrument guiding the framework, procedure, and responsibility of involved parties in conducting the TEIA. Although the Espoo Convention was not the first agreement or Convention to address transboundary issues and provide for TEIA, it is widely regarded as the most complete and progressive of the Conventions (Koyano, 2008; Leekbhai & Poboorn, 2018).

Regarding the Association of Southeast Asian Nations (ASEAN), transboundary impact is still a visible concern, and it is also a problem that needs to be solved, whether the issue of sharing water resources around the Mekong River or the transboundary air pollutants. To address these environmental concerns, ASEAN has worked to foster closer collaborations among its member countries. This includes the establishment of an ASEAN agreement on transboundary haze pollution and an agreement on the cooperation for the sustainable development of the Mekong River basin. However, this has not been very successful enforcement (Fongissara & Buddharaksa, 2022; Itasari & Mangku, 2021; Muhammad, 2022; Okowa, 2000). This

is partly due to adherence to the ASEAN way (Charusombat, 2023; Ghani et al., 2017); apart from this, no legislation or international agreement considering transboundary impacts has been established for any development at both strategic and project levels to date. This remains a challenging matter for the ASEAN context to find ways to take action in reducing transboundary impacts.

In Thailand, although EIA system has been legislatively taken into account for over decades, limitations of environmental assessment at strategic levels for infrastructure development remained existed (Chanchitpricha et al., 2019). This is because SEA is still considered discretionary (Chanchitpricha et al., 2019; Chanchitpricha et al., 2021). As such, applying SEA findings into supporting the assessment of transboundary impacts are considered very limited, and challenging. Concerning the Lao PDR context, Swangjang (2018) highlighted that the EIA measures was applied in 1999 aiming to promote and protect environment towards sustainability, then revised in 2010. Regarding this, key issues are addressed for the EIA practice, i.e. biodiversity offsets, ecosystem service in EIA, transboundary effects, and cumulative impacts. It is noted that the development of infrastructure has been highlighted through the national plan, *the Five-Year National Socio-Economic Development Plan*. Additionally, air pollution, soil erosion, or landscape fragmentation can be considered as significant impacts which could potentially transport/ or cause changes across borders and become transboundary impact.

Consequently, through the lens of the selected case in this study, it is essential to consider how environmental management in the ASEAN context should be conceptualized to protect against adverse impacts across borders. This study aims at considering the concept of the Espoo Convention as a tool for shaping how

transboundary environmental impact, through a selected context in northern Thailand. The findings gained can be a trigger point considering how transboundary impact assessment should be considered and conducted in the ASEAN regions.

1.2 Research objectives

1. To review the key concept of Espoo Convention and existing memorandum agreements in ASEAN countries
2. To conduct a gap analysis by comparing the experiences of Espoo Convention implementation in ratified countries with the ASEAN context (focusing on northern Thailand bordering to Lao PDR), in order to identify key issues influencing the achievement of transboundary environmental impact assessments (TEIA)
3. To establish a roadmap to apply the principles of transboundary environmental impact assessment (TEIA) under the Espoo Convention in the context of ASEAN member states.

1.3 Research questions

1. How is the Espoo Convention applied and implemented in the parties ratified to the Convention? – and what challenges, lessons learned, and the key elements influencing the achievement of transboundary environmental impact assessment under the Convention?
2. In the ASEAN context, what are the lessons learned from experiences in dealing with transboundary impact?

3. What are the key aspects as learned from the implementation of the Espoo Convention to be taken into account for TEIA in Thailand? (i.e., How best to implement TEIA in Thailand)?

1.4 Scope of research

This study investigates the concepts and cases of implementation both UNECE and non-UNECE member countries' contexts under the Espoo Convention and ASEAN's experiences in dealing with transboundary impacts, especially in the case of Thailand and Lao PDR, through documentary analysis. The experiences of ratified countries were discussed based on responses to the selected experiences under the questionnaire for the Report of the Parties on Implementation, as well as recommendations and findings from the Implementation Committee reports. Meanwhile, ASEAN experiences were discussed with a focus on text of the 2002 ASEAN Agreement on Transboundary Haze Pollution (AATHP), Agreement on the cooperation for the sustainable development of the Mekong River basin (the Mekong Agreement), and the 2005 Procedure for Notification, Prior Consultation, and Agreement (PNPCA), along with other relevant documentation in the inclusion criteria (i.e., all relevant guidelines and experiences related to the Espoo Convention, TEIA, and transboundary issues). The scope of area in this study focusses on proposed activities in Nan Province, Thailand, which shares direct or nearby borders with Lao PDR. Then, findings from documentary analysis were analyzed by Thematic analysis (hybrid coding) and Gap analysis by comparing data between the Espoo Convention cases and ASEAN experiences on dealing with transboundary impact to obtain key

issues influencing the achievement of transboundary impact assessment in future practice for the ASEAN context, particularly, starting from the Thai contexts.

1.5 Expected results

1. Obtaining key aspects, challenges, and lessons learned from the implementation of the Espoo Convention
2. Obtaining key issues influencing the achievement of transboundary impact assessment in ASEAN context
3. Obtaining a roadmap to implement the Espoo Convention for the investigation in ASEAN countries (Thailand and Lao PDR)



CHAPTER 2

LITERATURE REVIEWS

2.1 Transboundary Environmental Impact Assessment

2.1.1 What is transboundary impact?

The United Nations Economic Commission for Europe, UNECE (2017a) defined transboundary impact as “*any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party*” (p.4). In addition, International Finance Corporation (2021) defined transboundary impacts as those that extend beyond the host country of the project, affecting multiple nations but not on a global scale. Examples include transboundary air pollution, the utilization of international waterways, and the spread of epidemic diseases. More understanding of transboundary impact can be investigated through case studies related to such issues having been experienced across the international contexts. Air pollution is an example considered transboundary impact. These pollutants could transmit across border and could extend to multiple countries from the project located in the country of origin (International Finance Corporation, 2021). Apart from air pollution, transboundary impact can be water pollution (e.g. oil contamination, changes in water resources e.g. rapid degradation of water resources from sharing resources), pandemics of disease (COVID-19 and monkeypox), and biodiversity.

This could lead to impacts in other aspects, e.g. social, economic, and human health (Kim et al., 2022; Marks & Miller, 2022; Organization, 2022; Ukwe & Ibe, 2010; UNECE, 2008; Zhao et al., 2021).

2.1.2 Transboundary environmental impact assessment (TEIA)

The purpose or objective of Transboundary Environmental Impact Assessment (TEIA) can refer to formal definitions provided by international convention, agreement or legal frameworks. Thus, determining clear definitions can help to clarify the goals of TEIA and align its implementation across different contexts. As presented in **Table 2.1**, it can be concluded that TEIA is a powerful tool for foreseeing, identifying, and assessing adverse transboundary impacts on the physical environment and social conditions that extend beyond the origin country of a proposed project. Additionally, it serves as a decision-making and policy tool to address environmental impacts across various dimensions.

Table 2.1 Definition of transboundary environmental impact assessment (TEIA) or transboundary impact assessment (TIA) based on literature reviews

Author (Year)	Definition
Bruch et al. (2007)	“TIA can be a powerful decision-making tool. It can help to identify and assess the potential impacts of a proposed project or activity, analyze the impacts of alternative formulations of the project or activity, and provide an informed basis for determining whether and how to proceed.” (p. 239)
Mirumachi and Nakayama (2007)	TEIA is concerned with potential border-crossing impacts. As a tool to foresee certain causal linkages between the project and the environment, TEIA encompasses a wide range of impacts on both the physical environment and on social conditions in the project area.
Schrage and Bonvoisin (2008)	“TIA can be accelerated and simplified through developing bilateral or multilateral agreements that provide a binding reciprocal framework for transboundary notification and consultations.” (p.234)

TEIA can be explained through experiences that apply it in different contexts, as presented in **Table 2.2**.

Table 2.2 Example experiences on Transboundary environmental impact assessment (TEIA)

Authors	Context	Key finding
Albrecht (2008)	UNECE member	Poland and Germany recognized the need for cooperation to address transboundary environmental issues. Both countries decided to agree together through Neuhardenberg agreement to adopt TEIA under the Espoo Convention as a formal procedure.
Boyle (2011)	UN member	The Pulp Mills case was the first to establish that prior transboundary impact assessments are required under general international law. The International Court of Justice's (ICJ) endorsed that transboundary EIA is a necessary element of the general obligation of due diligence in the prevention and control of transboundary harm.
Mirumachi and Nakayama (2007)	ASEAN member	The Navigation Channel Improvement Project of the Lancang-Mekong River from China-Myanmar faced shortcomings, including inadequate techniques, weak methodologies, limited public participation, and an EIA system that underestimated long-term effects.
Zhao et al. (2021)	MRC member	MRC's TEIA regulations have strengths, including an established and improving TIA procedure and the PNPFA framework. However, they lack a comprehensive transboundary impact evaluation system and need better public participation.

Each experience in applying TEIA depends on factors that vary, such as national laws, international law, cooperation, enforcement, willingness, awareness, understanding, and context. These factors contribute to different outcomes, even though they share the same goal of preventing transboundary environmental impacts and avoiding conflict. However, the willingness to cooperate and consult can be a positive trend and a valuable experience, potentially advancing TEIA to higher levels. Due to systemic inconsistencies in environmental assessment systems, challenges arise in implementing TEIA procedures for proposed activities. As a result, UNECE, as a

relevant agency, plays a facilitation role by publishing guidelines to overcome these challenges and promote a common understanding for implementing TEIA procedures in various contexts.

2.2 Convention on Environmental Impact Assessment in a Transboundary Context (The Espoo Convention)

The Convention on Environmental Impact Assessment in a Transboundary Context, commonly known as the “Espoo Convention”, was adopted in 1991 in Espoo, Finland. It entered into force in 1997 currently 2024 had 45 Parties, the status of ratification of the Espoo Convention (UNECE, 2014a), as detailed in **Appendix A**. Moreover, with the ratification of the latest amendment, the Espoo Convention is intended to be open for accession by all UN member states, positioning it as a truly global instrument. This aims to simplify the future accession of non-UNECE countries to the Convention—just as the SEA Protocol already allows (UNECE, 2014c)—to fill an important gap in international law and will further advance EIA as an important tool for sustainable development (UNECE, 2014b).

According to Article 2 of the Espoo Convention states that any proposed activity within a Party's territory that is likely to cause a significant environmental impact in an area under another Party's jurisdiction must be subjected to an environmental impact assessment (EIA). It specifies the requirements for early planning considerations as well as the parties' duties to inform and consult the public and one another about such an activity. The main goal of the Convention as shown in **Figure 2.1**.



Figure 2.1 The main goal of the Espoo Convention

(Developed based on Purnama, 2004; UNECE, 1991, 2017a)

Therefore, the Espoo Convention becomes the legal foundation for defining the rights and obligations of countries when a planned activity is expected to have transboundary environmental impacts. It provides a framework for TEIA in decision-making, aiming to prevent, mitigate, and monitor significant adverse transboundary impacts in various contexts. Additionally, the Convention also helped countries improve their environmental governance by promoting transparency, facilitating consultation among authorities, and enhancing public participation in planning and decision-making through a standardized TEIA process (Koivurova et al., 2014; Koivurova & Pölonen, 2010; Koyano, 2008; Okowa, 2000; Purnama, 2004). Moreover, the Espoo Convention contains definitions, rules, frameworks, and procedures for guiding the countries through the key stages to apply. The key points are as summarised in **Table 2.3** below:

Table 2.3 Objectives in each Article or Appendix under the Espoo Convention

Article	Objective
1	to explain the definitions contained in this convention
2	to show general provisions for all relevant Parties to assess the environmental impact of proposed activities at an early stage of planning
3-7	to explain the general obligations and procedures of all relevant Parties to notify and consult each other on proposed activities under consideration that are likely to have a significant adverse environmental impact across boundaries
8	to explain all relevant Parties can implement existing or enter into new bilateral or multilateral agreements while their implementing under this convention
9-20	to explain and suggest the roles, information, and solutions of all relevant Parties who ratified this convention
I	to show list of activities that are likely to have a significant adverse environmental impact across boundaries
II	to show minimum requirements on the EIA document
III	to provide general criteria to assist in the determination of activities not listed in appendix I
IV	to provide inquiry procedure to all relevant Parties
V	to explain the objective of post-project analysis
VI	to provide elements for bilateral or multilateral co-operation (Article 8)
VII	to explain about arbitration for all relevant Parties

Source: Adapted based on UNECE (1991, 2017a)

2.2.1 List of activities for screening step

According to the Espoo Convention, it starts with a notification, but in practice, the screening step is the first task of the Espoo Convention (UNECE, 2006a). In order to determine whether any activity or any major change may have significant transboundary impacts, the nature and size of projects according to Appendix I of the Convention are taken into account (as shown in **Table 2.4**). In case of major changes may occurs regarding the activities Appendix I, the Party of Origin (PO) shall send a notification to the Affected Party (AP) and continue to conduct TEIA.

Table 2.4 List of activities on Appendix I of the Espoo Convention

No.	Type of Project or Activity	Size
1	Crude oil refineries and installations for the gasification and liquefaction	500 metric tons of coal or bituminous shale/day
2	Thermal power stations	300 megawatts
	Nuclear power stations and other nuclear reactors	All size
	Installations for the reprocessing of irradiated nuclear fuel	All size
	Installations designed:	
3	- For the production or enrichment of nuclear fuels	All size
	- For the processing of irradiated nuclear fuel or high-level radioactive waste	
	- For the final disposal of irradiated nuclear fuel	
	- Solely for the final disposal of radioactive waste	
	- Solely for the storage of irradiated nuclear fuel or radioactive waste in a different site than the production site	
4	Major installations for the initial smelting of cast-iron and steel and for the production of non-ferrous metal	All size
5	Installations for the extraction of asbestos and for the processing and transformation of asbestos and products containing asbestos	
	- Asbestos-cement products	20,000 metric tons with an annual production
	- Friction material	50 metric tons with an annual production
	- Other asbestos utilization	200 metric tons/year
6	Integrated chemical installations	All size
7	Construction of motorways, express roads, and lines for long-distance railway traffic and airports	2,100 metres
8	Construction of a new road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes	10 km
9	Trading ports and inland waterways	1,350 metric tons
	Waste-disposal installations for the incineration, chemical treatment, or landfill of toxic and dangerous wastes	All size
10	Waste-disposal installations for the incineration or chemical treatment of non-hazardous waste	100 metric tons/day
11	Large dams and reservoirs	All size
12	Groundwater abstraction activities or artificial groundwater recharge schemes where the annual volume of water to be abstracted or recharged	10 million cubic meters
13	Pulp, paper, and board manufacturing	200 air-dried metric tons/day

Table 2.4 List of activities on Appendix I of the Espoo Convention (Cont')

No.	Type of Project or Activity	Size
14	Major quarries, mining, on-site extraction and processing of metal ores or coal	All size
15	Offshore hydrocarbon production (Extraction of petroleum and natural gas for commercial purposes)	
	- Extraction of petroleum	500 metric tons per day
	- Extraction of gas	500,000 cubic metric tons/day
16	Major storage facilities for petroleum, petrochemical and chemical products	All size
17	Deforestation of large areas	All size
	Works for the transfer of water resources between river basins where this transfer aims at preventing possible shortages of water and where the amount of water transferred	100 million cubic metric/year
18	Works for the transfer of water resources between river basins	
	- where the multi-annual average flow of the basin of abstraction	2000 million cubic metric/year
	- where the amount of water transferred	5% of this flow
	(In both cases transfers of piped drinking water are excluded)	
19	Waste-water treatment plants with a capacity	150,000 population equivalents
20	Installations for the intensive rearing of poultry or pigs:	
	- For broilers	85,000 places
	- For hens	60,000 places
	- For production pigs (over 30 kg)	3,000 places
	- For sows	900 places
21	Construction of overhead electrical power lines	220 kV and length 15 km
22	Major installations for the harnessing of wind power for energy production (wind farms)	All size

Source: Adapted based on UNECE (2017a)

Meanwhile, if a proposed activity is likely to cause a significant adverse transboundary impact but is not explicitly listed in the Convention, the Affected Party may still consider it to have such an impact. In such cases, the Convention provides general criteria in Appendix III for determining whether an unlisted proposed activity should be subject to its provisions. Therefore, in **Table 2.5**, Appendix III of the

Convention helps to ensure that the screening step can cover more activities that are likely to have a significant adverse transboundary impact. It is noted that, clear screening process will help all relevant parties manage potential confusion and minimize disputes while ensuring that economic activities align with environmentally sound and sustainable development practices.

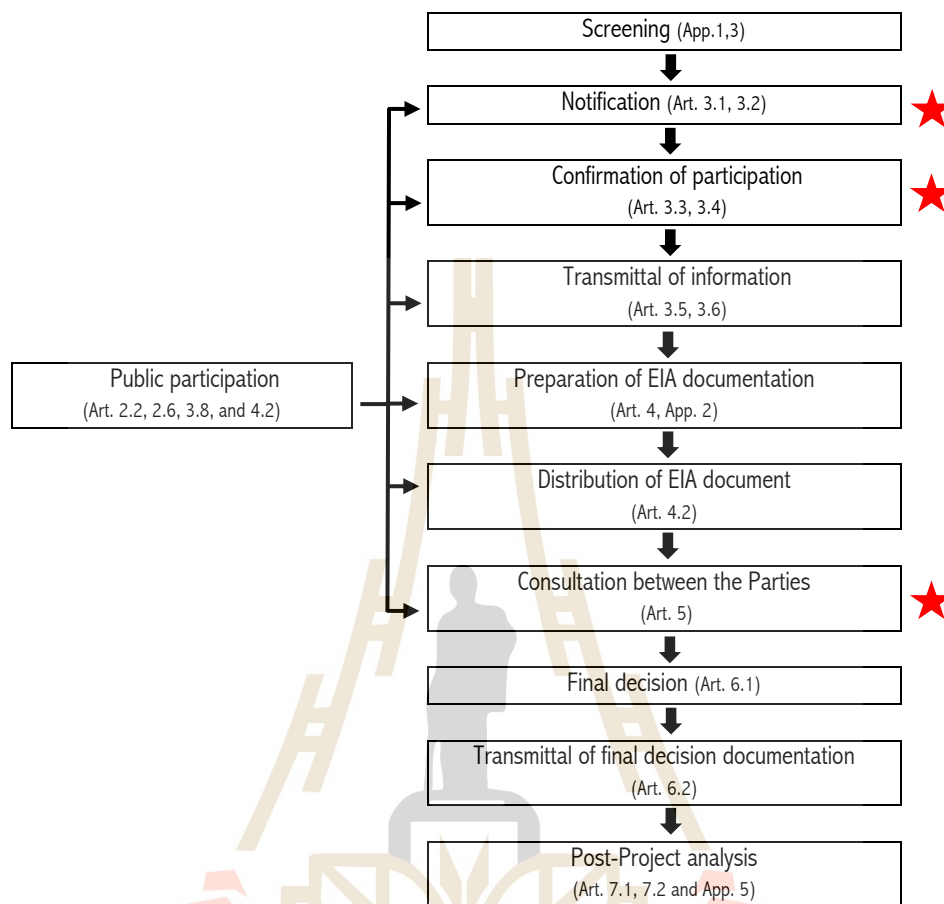
Table 2.5 Details and criteria in Appendix III of the Espoo Convention

Criteria	Detail
(1) When the Proposed activity belongs to one or all of the three-criteria	△ Size: Proposed activities which are large for the type of the activity.
	△ Location: Proposed activities in or near environmentally sensitive or importance areas that could significantly impact the population.
	△ Effects: Proposed activities which are complex and potentially adverse effects to serious effects on humans, on valued species, threaten the existing on an affected area.
(2) Location of Proposed activity	△ The concerned Parties shall consider the location of the Proposed activities which are located either located near or far from an international frontier

Source: Adapted based on UNECE (2017a)

2.2.2 Procedure of the Espoo Convention

The main goal of the Espoo Convention is to prevent, reduce, and control significant adverse transboundary environmental impacts from proposed activities (Purnama, 2004; UNECE, 1991, 2017a). For implementing the Convention, the Party of Origin takes the responsibility for carrying out this TEIA procedure and cooperates with the Affected Party to achieve the main goal of the Convention. The steps of the Convention procedure are depicted in **Figure 2.2**.



Remark¹: ★ represents the procedures of the Espoo Convention that require attention differently from generic EIA process.

Remark²: Art. = Article and App. = Appendix under the Espoo Convention

Figure 2.2 The procedure steps of the Espoo Convention

(Adapted based on de Boer, 1999; UNECE, 1991, 2017a)

Referring to Boer (1999) and UNECE guidance under the Espoo Convention, including documents such as Guidance on Notification According to the Espoo Convention (2009), Guidance on the Practical Application of the Espoo Convention (2006), and Guidance on Public Participation in Environmental Impact Assessment in a Transboundary Context (2006), it was found that notification, participation

confirmation, and party consultation are critical procedures that distinguish the TEIA process from general EIA procedures. Therefore, these processes are considered steps that need special consideration to ensure the TEIA process can proceed smoothly and in same direction.

2.2.3 Operationalizations of the Espoo Convention

To ensure that the TEIA under the Convention is applied to prevent, mitigate, and control significant adverse environmental impacts arising from economic development in a comprehensive and transboundary context (UNECE, 2017a), UNECE has developed a reporting instrument or questionnaire. This tool is designed to collect and analyze information about the implementation and practical experience of EIA in a transboundary context. It also includes the establishment of an implementation committee to review parties' compliance with their obligations under the Convention by providing the implementation committee report with the aim of helping them fully meet their commitments without focusing on who is right or wrong (UNECE, 2009b), as detailed as follows:

(1) The Implementation Committee

The Implementation Committee under the UNECE Espoo Convention is a specialized body established regarding the Meeting of the Parties. The committee shall consist of member from eight Parties (not more than twelve parties), each serving a term not exceeding four years. Additionally, the committee has the role to (1) review compliance and non-compliance by the parties with their obligations under the Convention, (2) provide

recommendations, advice, procedures, and techniques to assist Parties in implementing their obligations under the convention, and (3) prepare reports on implementation developed based on their practical experiences. Align to UNECE (2009b) presented that their experience has included helping countries review and develop their national legislation in order to implement the Convention. Thus, the Implementation Committee plays a crucial role to ensure compliance, provides guidance, and supports national legislation development for effective implementation of the Espoo Convention. Including contributes to enhancing transparency, accountability, and cooperation in environmental governance at both regional and international levels (UNECE, 2020).

(2) The Implementation Committee Report and procedures for review of compliance

The implementation committee report is a document providing justification and recommendations of the committee on the experience of the parties whether their practices are complied with the Convention or not. This may arise either, (1) when there is one or more parties submit their concerns on transboundary impact along with supportive evidence to the executive secretariat of the UNECE (or the secretariat). This will be forwarded to the relevant parties requesting for response and explanation so that the committee can review the case later on; or (2) when a party believes that it will be unable to conduct practice fully complied with its obligations, despite its best efforts. In such case, the Party must submit an explanation of the reasons for non-compliance to the secretariat and then send it to the committee. Thus, the

Implementation Committee report, section of findings, and recommendations on compliance prepared by the implementation committee towards the implementation experiences of cases of concerns, where most reveal the committee's perspective, including some perspective on the TEIA implementation of each party in practical experience. For example, the consideration on whether these potential impacts have been properly assessed, and affected parties have been adequately notified and consulted, or not. A process to obtain the Implementation Committee report is presented in **Figure 2.3**.

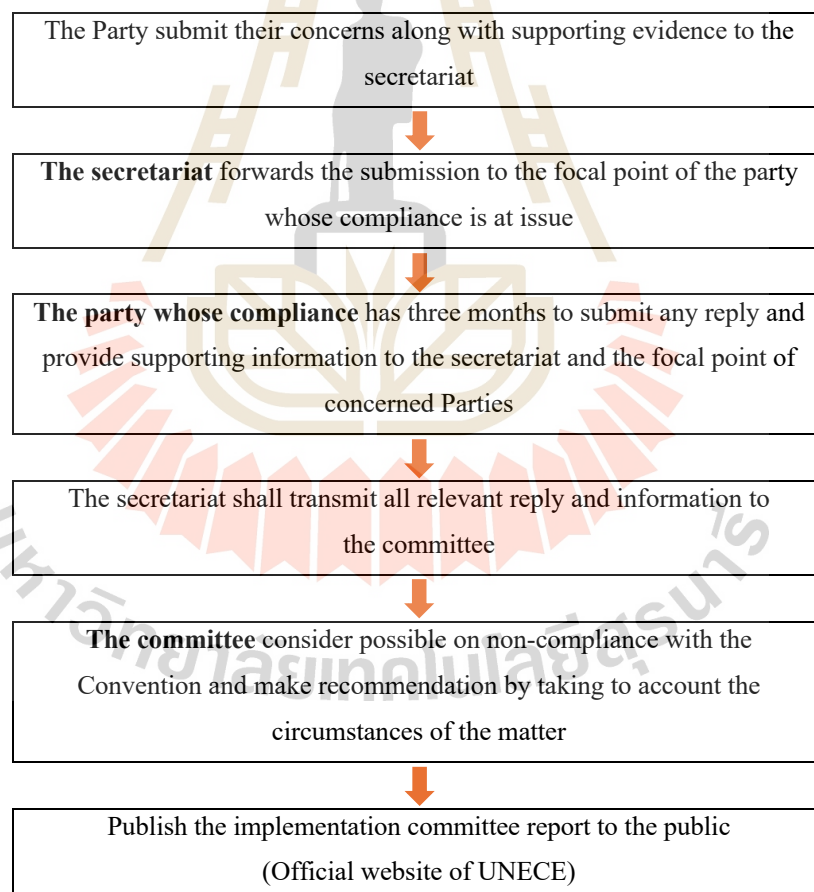


Figure 2.3 Procedure for obtaining the implementation committee report

(Adapted based on UNECE, 2009b)

(3) The Questionnaire Report of the Parties on the Implementation

The Questionnaire is used to collect and analyze information on the application of EIA in a transboundary context (UNECE, 2022b). The secretariat has a role to request the focal points for the Convention to complete the questionnaires on their implementation and practical experience. This will allow the data collection to be proceeded regarding the implementation experiences of each party. **Figure 2.4** demonstrated a process of the questionnaire survey requesting for responses of the implementation experiences among the ratified countries.

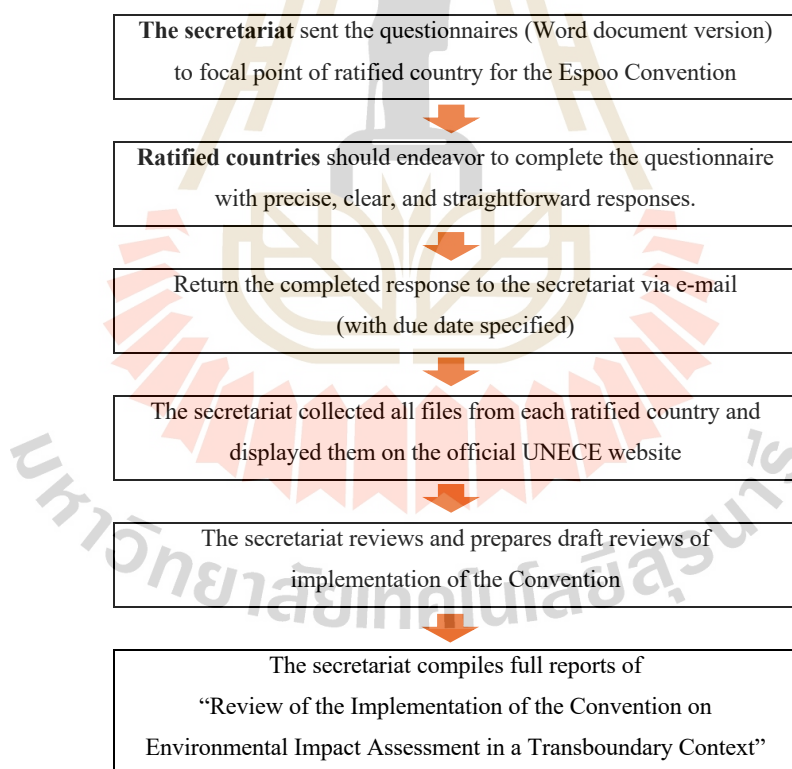


Figure 2.4 The process of responding to the questionnaire for the Report of the Parties on Implementation (Adapted based on UNECE, 2022b)

The Secretariat requests ratified countries to share their information through the questionnaire. According to the questionnaire template (UNECE, n.d.), the questionnaire can be divided into two parts, each requiring different types of information (**Table 2.6**).

Table 2.6 The data to be obtained from the questionnaire for the Report of the Parties on Implementation

Questionnaire items	The data to be obtained
Part 1 33 items	In-depth details of the domestic regulations or legislation of ratified countries related to the implementation of the provisions of the Convention
Part 2 27 items and example of application	Practical experiences, best practices, challenges, and solutions in applying the Convention by the ratified countries, both as Parties of Origin and as Affected Parties.

Part 1 Current legal and administrative framework for the implementation of the Convention: to obtain in-depth details about domestic regulations or legislation related to transboundary context, including the application of the TEIA procedure and the operations of relevant authorities under the Convention, these questions will be based on Articles of the Convention that will be linked to the TEIA procedure (Articles 1–8). As a result, each party's response will reveal their perspective on management and implementation to meet the goals of the Convention.

Part 2 Practical application during the period 2019–2021: to obtain each party's implementation by presenting each party's experience in a different context under TEIA procedure implementation in practice (any similarities, differences, or additional points). Additionally, it detailed the limitations, challenges, and lessons learned throughout the TEIA procedure's implementation, all of which can assist and facilitate each party to carry out the TEIA procedure under the Convention completely.

However, the Meeting of the Parties (MOP) to the Espoo Convention plays a central role in overseeing the review, preparation, and development of the "*Review of the Implementation of the Convention on Environmental Impact Assessment in a Transboundary Context*," comprising the Implementation Committee, the Working Group, and the Secretariat. Therefore, the "*Review of the Implementation of the Convention on Environmental Impact Assessment in a Transboundary Context*" is essential for ensuring the effective application of the Espoo Convention through the collection of lessons learned, challenges, and insights experiences into the implementation process faced by each Party. The review seeks to pinpoint gaps in compliance and suggests improvements to strengthen adherence to the Convention's objectives. Additionally, it emphasizes the importance of fostering international cooperation and building trust between countries, which is crucial for promoting sustainable development and effectively dealing with transboundary environmental impacts.

2.2.4 Relevant agreement on the Espoo Convention

(1) Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context

The Protocol on strategic environmental assessment (SEA) to the convention on EIA in a transboundary context was adopted in 2003. It applies the principles of the Espoo Convention to plans, programs, policies, and legislation with the same objectives of the Espoo Convention. Thus, the Protocol become a fully global instrument and to simplify the future accession of non-UNECE countries to the Convention (UNECE, 2014c). According to the protocol on SEA in transboundary context was added about (1) transboundary consultation (Article 10): where a Party of origin considers that the implementation of a plan or program is likely to have a significant transboundary impact. Therefore, the Party of origin shall, as early as possible before the adoption of the plan or program, notify the affected Party. Consultations take place to ensure that the public concerned, and the authorities forward their opinion on the draft plan or program and the environmental report within a reasonable time framework. And (2) the meeting of the Parties to the Convention (Article 14): for this purpose, shall: a) Review policies for and methodological approaches to strategic environmental assessment, b) Exchange information regarding experience gained in strategic environmental assessment and in the implementation of this Protocol, c) Seek, the services and cooperation of competent bodies having expertise pertinent, d) Establish such subsidiary bodies as it considers necessary for the implementation of this Protocol, e) Consider, adopt proposals for amendments to this Protocol, and undertake any

additional action that may be required for the achievement of the purposes of this Protocol.

(2) The Convention on access to information, public participation in decision-making and access to justice in environmental matters (Aarhus Convention)

The Espoo Convention ensures providing an opportunity for people living in areas likely to be affected by transboundary impact, to be informed regarding activity to make comments or raise their objections to the proposed activity and participate in the EIA procedures. As such, The Aarhus Convention empowers public participation in environmental governance by ensuring access to information, decision-making, and justice. It holds authorities accountable, promotes transparency, and supports sustainable development. This fosters democratic practices and environmental stewardship through informed engagement (UNECE, 2006a).

The Aarhus Convention was adopted on 25 June 1998 in Aarhus (Århus), Denmark, during the Fourth Environment for Europe Ministerial Conference and entered into force on 30 October 2001. It is founded on the principles of participative democracy to enhance the role of citizens and civil society in environmental matters. The Convention protects the right of current and future generations to live in an environment conducive to health and well-being, ensuring access to information, participation in decision-making, and access to justice in environmental matters.

The Aarhus Convention provides for: (1) Access to environmental information (Citizens have the right to obtain environmental information held by public authorities); (2) Public participation in environmental decision-making (Citizens can engage in the development of plans, programs, policies, and legislation that impact the environment); and (3) Access to justice (Citizens can seek legal review if their rights to access information or participate in decision-making are violated). Therefore, the Aarhus Convention contributes significantly to the strengthening of public participation in their implementation of the Espoo Convention.

2.3 Experiences on transboundary environmental impact assessment

When each country signed and ratified the Espoo Convention on EIA in a Transboundary Context and become Parties to the Espoo Convention. The Parties are ready and willing to formally carry out the provisions, procedures, and frameworks of EIA in a transboundary context or the Espoo Convention (i.e., the law, other measures, and responsibility of relevant authorities were enforced and determined). To prevent, reduce and control significant adverse transboundary environmental impact from proposed activities, particularly to avoid conflict from transboundary impact flows across borders. For the TEIA process to run smoothly, experiential learning can contribute to closing gaps between different IA systems, leading to a more effective approach for application in order to achieve the goal of the Convention. A lack of experience in implementing the Convention can lead to deadlocks and gaps in the TEIA

processes. To this end, the Convention should be considered with particular attention to practical implementation.

Although information is taken from the "Questionnaire for the Report of the Parties on the Implementation of the Convention on Environmental Impact Assessment in a Transboundary Context for the Period 2019–2021," it can reflect and demonstrate critical issues from applying the Convention in an international context. Normally, the procedures and frameworks from the Espoo Convention are ready to be immediately applied but in practice, the procedure and framework can change over time depending on the agreement between the Parties. The procedure and framework can be tailored to meet the needs of each party. Consultation between the Parties is a one of key procedure to reducing complexity or saving time in implementing the process (Netherlands, 2000). In addition, bilateral or multilateral agreements can provide a tailored framework for carrying out the assessment procedure between the two Parties (de Boer, 1999). This approach may be an effective way to overcome issues brought on by inconsistencies in the parties' respective legal systems and practices, as well as to facilitate communication and information exchange (UNECE, 2006a).

Different contexts lead to different approaches in applying the procedures of the Espoo Convention, that reflect on the Convention is not only intended to address potential environmental risks but also serves as a framework for implementing TEIA and defining the responsibilities of Parties to meet requirements specific to each context and country (Koyano, 2008). Clearly identified procedures and responsibilities facilitate the assessment process and prevent the Party of origin from arbitrarily or inappropriately deciding whether a proposed activity should be subject to TEIA. Additionally, for Parties that frequently apply the Convention (UNECE, 2006b),

practical experience may help bridge challenges that arise from differences in practice (e.g., cultural, traditional, historical, or demographic factors) and legislative frameworks. Thus, learning from practical experiences can serve as a valuable guide for establishing obligations and responsibilities, especially in countries that are not EU members or have not ratified the Convention.

2.4 Key issues related to the effectiveness of transboundary environmental impact assessment

2.4.1 Procedural effectiveness

According to Chanchitpricha (2012, p. 110), procedural effectiveness is defined as "*procedural effectiveness can be observed from three main stages of the project/policy/programme cycle: input, process, and output.*" It can be assessed based on various factors, including the policy framework, political context, resource availability, public participation, existing knowledge, lessons learned, and past experiences (Chanchitpricha, 2012; Chanchitpricha & Bond, 2013). The results of such assessments may vary depending on context, culture, traditions, people, and geography. In order to determine whether policies and guidelines related to impact assessment in various dimensions (e.g., environmental, health, social, and transboundary impact), issued by the government or relevant agencies, are effective in practice, procedural effectiveness criteria developed by Chanchitpricha and Bond (2013, 2015) were applied to help formulate questions to obtain key insights, ensuring that policies related to impact assessment are effectively and successfully applied in the process.

Procedural effectiveness criteria consisting of (P1) relevant policy framework and procedures; (P2) institutional roles, collaborations, and infrastructure; (P3)

integrating EIA and the transboundary impact approach in the planning process; (P4) identification of financial funds for EIA practice; (P5) involvement of stakeholders or public participation in the process; (P6) capacity of EIA in presenting as a sound and clear, understandable evidence for decision; (P7) delivering the EIA report to participating stakeholders; and (P8) time enforcement.

Procedural effectiveness is crucial in assessing whether the application of TEIA in various contexts successfully achieves the goals of a Convention. Additionally, it helps identify gaps for further development, strengthening TEIA as a tool for addressing transboundary impacts and supporting progress toward the SDGs. Therefore, an effective TEIA is essential for fostering international cooperation, maintaining social stability, and protecting ecosystems vital to all parties involved.

2.4.2 Key issues related to the effectiveness of transboundary environmental impact assessment

To ensure that the Parties operate effectively under the Espoo Convention, the preamble of the Convention (UNECE, 2017a, p. 3) outlines a structured and collaborative framework for evaluating the environmental impact of economic activities, especially those with transboundary effects. These key issues, as shown in **Figure 2.5**, are fundamental to supporting the successful implementation of the Convention's objectives.

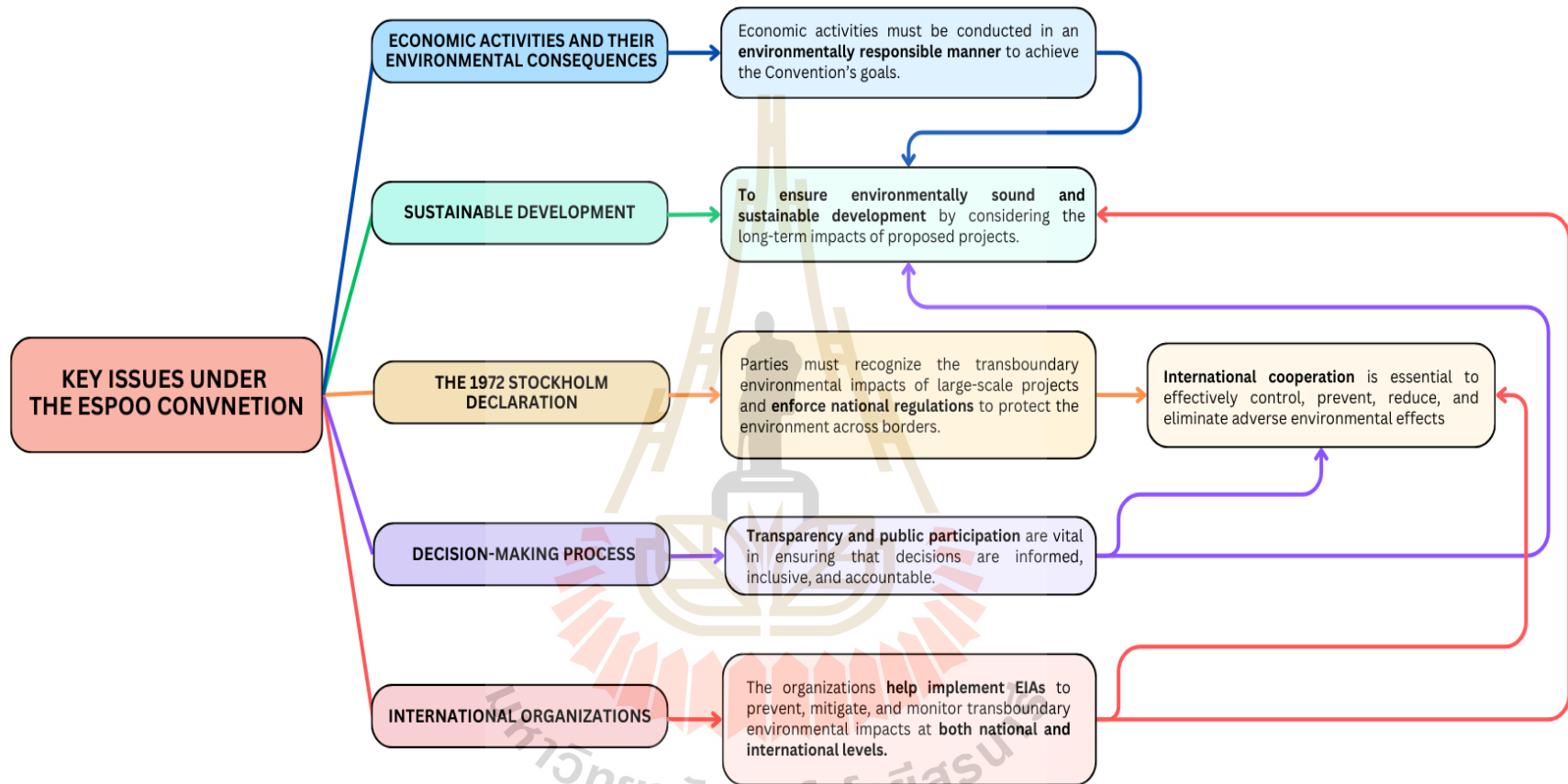


Figure 2.5 Key issues related to the effectiveness of transboundary environmental impact assessment under the Espoo Convention

Adapted based on UNECE (1991, 2017a)

(1) Economic activities and their environment consequence

Economic activity refers to any action that involves the production of goods and services to fulfill people's needs and enhance the quality of life and well-being of individuals and groups in society. It encompasses various sectors, including energy, transportation, industry, and infrastructure (Howes & Wyrwoll, 2012; Paulo, 2014; UNECE, 2017b). According to Aquilas et al. (2022), evidence shows that increasing economic activities not only accelerates economic growth but also impacts and degrades the environment. Almost of the economic activities are directly linked to the activities listed in Appendix I of the Espoo Convention (as detailed in **Section 2.2.1, List of Activities for Screening Step**), which are likely to cause significant adverse transboundary environmental impacts. There is a connection between economic activities and environmental factors and consequences, and the impact occurs whether it is air pollution, water pollution, a chemical spill, or even a human health impact. These are all significant impacts that can easily transport across borders. Therefore, Parties must always be aware, whenever economic activities started, environmental consequences should be minimized (UNECE, 2017a).

(2) Sustainable Development Goals

The Sustainable Development Goals (SDG) was launched to encourage the Parties more attention to the environmental dimension (Elder & Ellis, 2022), it has been stated that the environmental impact of economic activities must be minimized in order to achieve the goals of the SDGs. The Espoo Convention became a tool to assist and ensure the development of activities, plans,

programs, and policies in all economic sectors with the intention and endeavor not to let these activities affect the environment or health, including protecting biodiversity and natural habitats. As a result, economic activities that must occur alongside environmentally sound and sustainable development to affirm significant adverse transboundary environmental impact will be halted in line with the goals of the SDGs (UNECE, 2017b).

(3) Stockholm Declaration

The Declaration of the United Nations Conference on the Human Environment, 1972, also known as the Stockholm Declaration, is the foundation for a shift in international environmental law to develop national plans and then bring to minimize pollution along with the human impact by the predominant focus on transboundary pollution (Handl, 2012). According to Chapter 1 of the Stockholm Declaration, there is an emphasis on the need to safeguard and improve the environment (United Nations, 1972). To effectively reduce pollution and protect the environment and people in line with the goals of the Declaration, each country must recognize the potential impacts of large-scale projects. This requires the implementation of national legal, administrative provisions, and policies on EIA to ensure that activities within their jurisdiction or control do not cause environmental harm to other states or areas beyond national jurisdiction (Principle 21 under the Stockholm Declaration). Furthermore, international cooperation through multilateral or bilateral arrangements is essential to effectively control, prevent, reduce, and eliminate

adverse environmental effects resulting from activities conducted in all spheres, pursuant to the Stockholm Declaration, Principle 24 (United Nations, 1972).

(4) Decision-making process

Referring to The Espoo Convention, the decision-making process is guided by the application of EIA to consider environmental factors at an early stage. This approach aims to improve the quality of information provided to decision-makers, enabling them to make environmentally responsible decisions while prioritizing the reduction of significant adverse impacts. In a transboundary context, transparency is essential for ensuring effective cooperation and accountability. Therefore, the Aarhus Convention serves as a critical framework for accessing environmental information and enhancing public participation and consultation in environmental decision-making for proposed projects that may affect the environment (Article 4, 5, 6, 7) (UNECE, 1998). Moreover, Article 8 under the Aarhus Convention, also allow the public to participate in drafting regulations and legally binding rules that may impact the environment to promote transparency and accountability in legislative processes. Thus, ensuring equal opportunity among parties in the TEIA process along with the Espoo Convention, it contributes to improved decision-making and supports environmentally sound sustainability.

(5) International organization

According to Gutner and Heltberg (2025), explain about "*International organizations*" are authorities that must work together to address regional and

global crises and achieve the organization's objectives. Thus, under the auspices of the United Nations Economic Commission for Europe (UNECE), international organizations can be considered as one of the important factors to promote use of EIA. They set out frameworks for decision-making and apply measures to prevent, mitigate, and monitor transboundary impacts from proposed activities in various contexts, both at the national and international levels, in order to achieve the organization's goals (UNECE, 1991, 2017a).

2.5 Transboundary agreement in ASEAN context

The Association of Southeast Asian Nations, or ASEAN, is a regional organization comprising ten Southeast Asian countries (Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei Darussalam, Vietnam, Lao PDR, Myanmar, and Cambodia), providing a legal status, institutional framework, and ASEAN norms (ASEAN, n.d.). This framework and norms have led to diversity among member states in addressing various issues, as each country has its own approach based on a principle of non-interference to problem-solving. However, environmental issues, especially transboundary issues such as water resource management and air-haze pollution, have gained increasing significance. ASEAN member countries have established transboundary agreements, namely the ASEAN Agreement on Transboundary Haze Pollution (2002) and the Mekong River Agreement (1995), which are essential for addressing these issues and promoting regional cooperation and sustainable development in the region. The key objectives and relevant issues of both agreements are summarized as key elements as demonstrated in **Table 2.7**.

Table 2.7 Key elements addressed in the context of ASEAN Agreements

Key elements	ASEAN context	
	ASEAN Agreement on Transboundary Haze Pollution (AATHP)	Mekong River Agreement
Member states	Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei Darussalam, Vietnam, Lao PDR, Myanmar, and Cambodia	Cambodia, Lao PDR, Thailand, and Vietnam
Objectives/Goals	To prevent, monitor, and mitigate land and forest fires to control transboundary haze pollution through concerted national efforts, regional and international cooperation in the context of sustainable development.	To promote cooperation among riparian states in sustainable development, equitable resource use, and conservation among riparian states, including to protect the environment, aquatic life, and ecological balance from harmful impacts through proactive and coordinated actions to take appropriate remedial action without delay.
Keywords	<ul style="list-style-type: none"> - Forest fires - Regional cooperation - National policies - Transboundary haze pollution - Exchange of information - Consultation and Public participation - Monitoring - No harm rule principle - The spirit of solidarity and partnership - Precautionary principle - Sustainable Development 	<ul style="list-style-type: none"> - Water resource, Nature resource, Aquatic life - Regional cooperation - Sustainable Development - PNPCA - Data sharing - Monitoring - Transboundary environmental impact
Guideline for implementation	<ul style="list-style-type: none"> - Not officially available 	<ul style="list-style-type: none"> - Guidelines for TbeIA - Guideline on the PNPCA
Procedure needs special consideration	<ul style="list-style-type: none"> - Not officially available 	<ul style="list-style-type: none"> - Notification - Prior consultation - Agreement

2.5.1 ASEAN Agreement on Transboundary Haze Pollution 2002

Transboundary air pollution can occur in all regions of the world (i.e., America, and Europe), including Southeast Asia, where forest fire problems also occur. Southeast Asia experienced five major forest fires between 1982-2001, with one of the major forest fires occurring in Indonesia (Kumtrai, 2018). Which is a severe forest fire that caused damage to the forests of Indonesia and also affected neighboring countries (the Philippines, Malaysia, and Thailand) (Yaacob et al., 2016) as well. During that period, the problem of transboundary haze pollution from forest fires was resolved because there was still a lack of knowledge, understanding, and cooperation in the Southeast Asian region. Until 2002, an ASEAN Agreement on Transboundary Haze Pollution (or AATHP) was established (Fitriyanti & Gunawan, 2019; Fongissara & Buddharaksa, 2022; Kumtrai, 2018) with objectives to prevent, monitor, and mitigate land and forest fires to control transboundary haze pollution through concerted national efforts, regional and international cooperation in the context of sustainable development and in accordance with the provisions of this Agreement (ASEAN Agreement on Transboundary Haze Pollution, Article 2) (ASEAN, 2016b). The structure of the ASEAN Agreement on Transboundary Haze Pollution is covered a broad range of topics aimed at preventing and managing haze pollution caused by land and forest fires in Southeast Asia. It includes 6 parts with 32 Articles, as summarized in **Table 2.8**.

Table 2.8 Objectives in each Chapter under the Asean Agreement on Transboundary Haze Pollution (AATHP)

Objectives
PART I. GENERAL PROVISIONS
Art. 1 Use of Terms to define clear and consistent definitions for key terms used throughout the Agreement
Art. 2 Objective to establish the overarching aim of the Agreement
Art. 3 Principles to outline the guiding principles for the implementation of the Agreement
Art. 4 General Obligations to establish the commitments of the Parties in achieving the Agreement's purpose
PART II. MONITORING, ASSESSMENT, PREVENTION AND RESPONSE
Art. 5 ASEAN Co-ordinating Centre for Transboundary Haze Pollution Control to establish the ASEAN Centre as a central body to facilitate and coordinate cooperation among Parties
Art. 6 Competent Authorities and Focal Points to establish a clear administrative framework to support the implementation of the Agreement
Art. 7 Monitoring, Art. 8 Assessment, Art. 9 Prevention to focus on enhancing the monitoring, assessment, and prevention of land and forest fires that contribute to transboundary haze pollution.
Art. 10 Preparedness to develop strategies and response plans to manage the risks to human health and the environment arising from land and/or forest fires and haze pollution
Art. 11 National Emergency Response to recommend the parties to take appropriate measures to mobilize necessary resources for responding to and mitigating the impact of land and/or forest fires and haze pollution
Art. 12 Joint Emergency Response to provide a mechanism for Parties to request assistance from other Parties or international organizations in the event of land and/or forest fires or haze pollution.
Art. 13 Direction and Control of Assistance to outline the responsibilities and coordination involved in the direction, control, and supervision of assistance provided during an emergency
Art. 14 Exemptions and Facilities in Respect of the Provision of Assistance to ensure that the requesting or receiving Party provides necessary support and exemptions to facilitate the provision of assistance.
Art.15 Transit of Personnel, Equipment, and Materials in Respect of the Provision of Assistance to facilitate the transit of personnel, equipment, and materials through the territory of any Party when involved in aiding with a requesting or receiving Party.
PART III. Technical Co-Operation and Scientific Research
Art. 16 - 17 to foster technical cooperation and encourage scientific and technical research, either individually or jointly, including in collaboration with international organizations.
PART IV. Institutional Arrangements
Art. 18 – 20 to lay the foundation for the institutional structure necessary to implement and manage the ASEAN Agreement on Transboundary Haze Pollution
PART V. Procedures
Art. 21 - 27 to establish the framework for effective governance, collaboration, and resolution mechanisms under the ASEAN Agreement on Transboundary Haze Pollution.
Part VI: Final Clauses
Art. 28 – 32 to establish the procedures and conditions for the ratification, acceptance, approval, or accession to the Agreement, define the entry into force of the Agreement, outline the limitations on reservations, designate the Depositary of the Agreement, and clarify the authentic text of the Agreement.

Source: ASEAN (2002)

Remark: “Art.” = Article

Article 3 of the AATHP establishes a foundational framework to guide Parties in implementing measures and preventing transboundary haze pollution effectively. Building on this, the Parties must fulfill their obligations to operationalize these principles and achieve the Agreement's objectives, as stipulated under Article 4, as demonstrated in **Figure 2.6**. The Parties shall: (1) Cooperation on Prevention and Monitoring: Parties agree to collaborate on preventing and monitoring haze pollution through fire identification, monitoring systems, early warnings, technology exchange, and mutual assistance; (2) Prompt Response to Affected States: Parties must respond quickly to requests for information or consultations from affected States to minimize haze pollution consequences, and (3) Implementation Measures: Parties are required to adopt legislative, administrative, or other actions to fulfill their obligations under the Agreement.

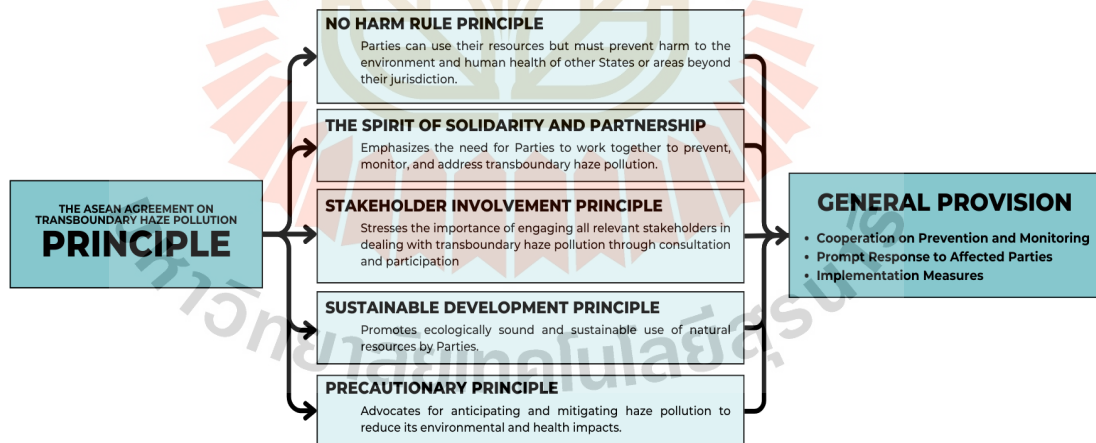


Figure 2.6 Relation between principle and general provision under the ASEAN

Agreement on Transboundary Haze Pollution

(Adapted based on Mekong River Commission, 1995)

2.5.2 Agreement on the cooperation for the sustainable development of the Mekong River basin 1995

The Mekong River, the longest river in Southeast Asia and one of the most biodiverse rivers in the world (Douglas, 2005), is divided into two parts: (1) the upper Mekong River Basin (UMB), which includes China and the eastern end of Myanmar, and (2) the lower Mekong River Basin (LMB), which spans Lao PDR, Thailand, Yunnan (China), Cambodia, and Vietnam (as shown in **Figure 2.7**).

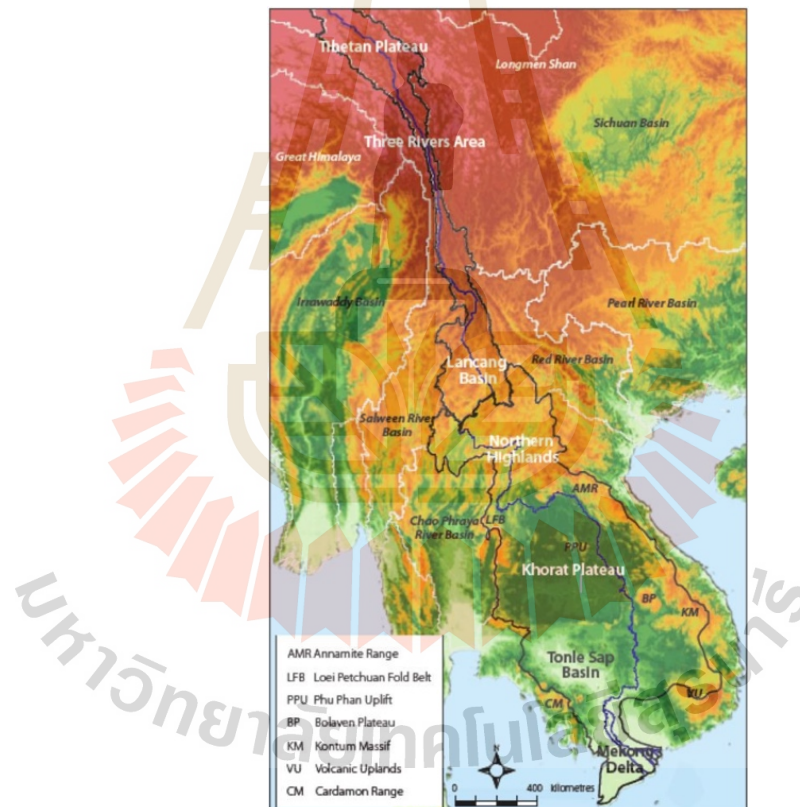


Figure 2.7 Topography and physiographic zones of the Mekong River Basin

(Mekong River Commission, n.d.)

The LMB covers approximately 70% of the basin and is crucial both economically and environmentally. It is therefore not surprising that the Mekong River basin has experienced serious social and environmental impacts, such as biodiversity loss, food insecurity, disrupted fish migrations, altered hydrological patterns, and sediment transfer issues (Eastham et al., 2008; Soukhaphon et al., 2021; Ziv et al., 2012). These problems are partly a result of economic development in the basin area, including hydropower projects, ports, and aquaculture projects, are already raising concerns among member countries regarding their potential transboundary environmental impact (Mekong River Commission, 2005).

This led to the development of the 1995 Mekong Agreement, which was signed by the Governments of its four Member Countries: Cambodia, Lao PDR, Thailand, and Viet Nam established the Mekong River Commission (MRC) to emphasize the sustainable development and management of the Mekong River Basin's water and related resources. It also establishes key procedures for data sharing, water use monitoring, and maintaining flow levels and water quality, providing a framework for member countries to achieve its objectives. The agreement is structured into six chapters, each focusing on critical aspects such as foundational contexts, definitions, objectives and principles of cooperation, organizational structures, and mechanisms for resolving disputes (as presented in **Table 2.9**).

Table 2.9 Objectives in each Chapter under the Agreement on the cooperation for the sustainable development of the Mekong River Basin

Objectives
<p>CHAPTER 1 Preamble</p> <p>to explain the foundational context and establish goals for cooperation among the riparian states of the Mekong River Basin</p>
<p>CHAPTER 2 Definitions of Terms</p> <p>to establish clear and consistent definitions for key terms used throughout the Agreement for ensuring mutual understanding among the parties and provides a standardized framework for interpretation and implementation</p>
<p>CHAPTER 3 Objectives and Principles of Cooperation</p> <p>to set out the guiding framework for collaboration among Mekong River Basin countries in managing and utilizing the basin's water and related resources.</p>
<p>CHAPTER 4 Institutional Framework</p> <p>to outline the organizational structure and operational mechanisms of the MRC to implement and oversee pursuant to the objectives of the Mekong Agreement</p>
<p>CHAPTER 5 Addressing Differences and Disputes</p> <p>to set mechanisms for resolving disagreements that may arise among parties to the agreement by upholding the principles of international cooperation and law</p>
<p>CHAPTER 6 Final Provisions</p> <p>to explain and conclude elements of the Agreement, addressing its implementation, amendment, scope, inclusivity, withdrawal, and international engagement.</p>

Source: Adapted based on Mekong River Commission (1995)

According to Chapter 3 of the Mekong Agreement, the objectives provide a guiding framework for collaboration among Mekong River Basin countries in managing and utilizing the basin's water and related resources. It can be summarized as follows:

- (1) To pursue sustainable development, management, conservation, and optimal use of water and related resources in the Mekong River Basin, cooperation, based on principles of sovereign equality, focuses on equitable, mutually

beneficial use among riparian states while minimizing harmful effects from natural and human activities;

(2) To promote, support, cooperate, and coordinate in the development of the full potential of sustainable benefits to all riparian States and the prevention of wasteful use of Mekong River Basin waters through the formulation of a basin development plan and to implement it at the basin level; and

(3) To protect the Mekong River Basin's environment, natural resources, aquatic life, and ecological balance from pollution and harmful impacts of development, focuses on avoiding, minimizing, and mitigating negative effects of resource use to take appropriate remedial action without delay.

For this reason, the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, or the Mekong Agreement, was launched to promote the sustainable development, utilization, conservation, and management of the Mekong River Basin water and related resources. In addition, relevant tools have been developed to support the implementation and practice of the TbEIA under the Mekong Agreement, as shown in **Table 2.10**, to ensure consistent alignment toward shared objectives.

Table 2.10 Example of tools for facilitating the TbEIA process under the Mekong agreement

Tools established to facilitate TbEIA	Key message	Reference
Transboundary Environmental Impact Assessment Guideline (TbEIA Guideline)	<ul style="list-style-type: none"> • The procedures for TbEIA and specification of the responsibilities to all relevant authorities • The Espoo Convention could be considered as a model for TEIA practices in ASEAN context • Outlines of the timeframe and cost responsibilities 	MRC (2023)
The Procedures for Notification, Prior Consultation, and Agreement (PNPCA)	<ul style="list-style-type: none"> • The implementation of the PNPCA prior consultation is considered inadequate <ul style="list-style-type: none"> - Diverse assessment standards - Inadequate funding - Politicized stakeholder involvement - Absence in consultation. 	MRC (2016); Yu and Chen (2022)
The Mekong River Basin indicator framework (MKB-IF)	<ul style="list-style-type: none"> • Guidelines should be established for determining indicators or parameters to ensure that basin management reporting is comprehensive and aligns closely with the goals of the Agreement. 	MRC (2019)

(1) Transboundary Environmental Impact Assessment Guideline (TbEIA Guideline) 2023

MRC member countries have developed the Transboundary Environmental Impact Assessment Guideline (TbEIA Guideline) as a tool to support the conduct of EIAs for projects on significant potential transboundary impacts (Mekong River Commission, 2023). This guideline could facilitate cooperation among member countries based on the Procedures for Notification, Prior Consultation, and Agreement (PNPCA) mechanism as the primary tool to ensure that project development adheres to the objectives of the Agreement (Yong & Gillespie, 2022; Yu & Chen, 2022).

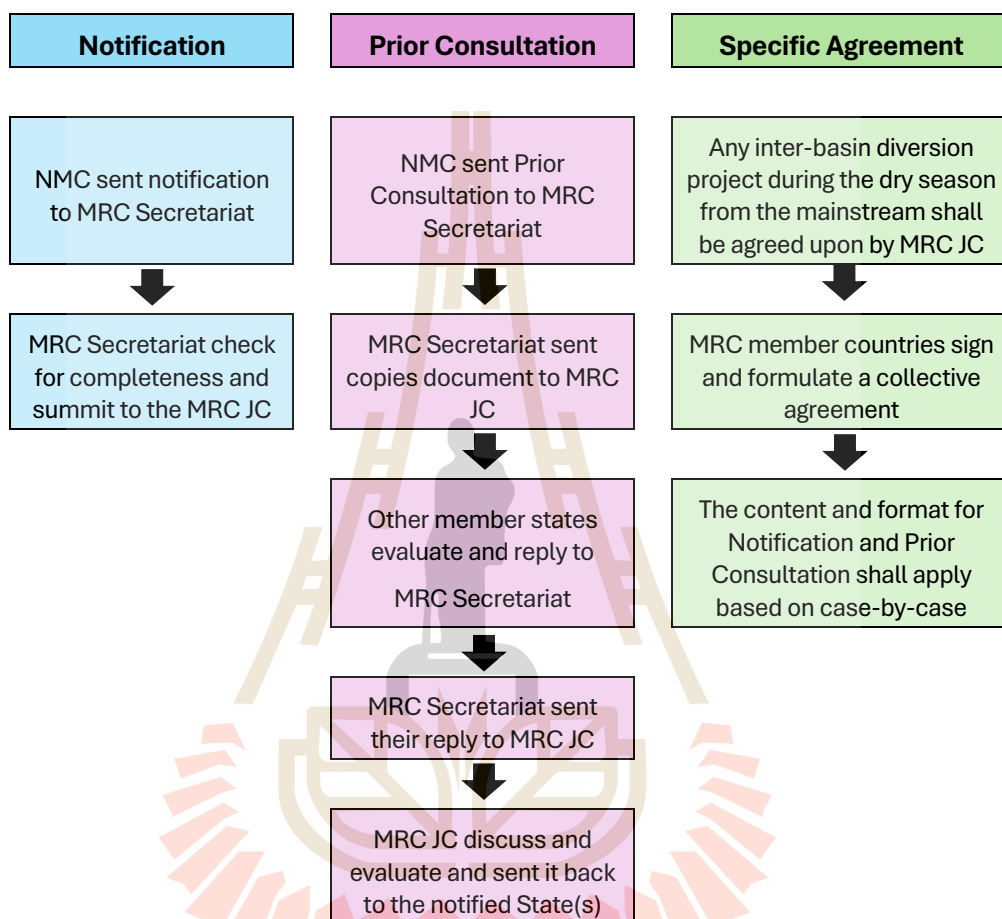
Furthermore, the TbEIA guideline has mentioned transboundary EIA practices in other contexts, e.g. the Espoo Convention, considered as a key model for ASEAN context development. The procedures for TbEIA and specifies the responsibilities of relevant authorities have been defined, including the proponent, the Country of Origin, and the potentially Affected Country (Mekong River Commission, 2005, 2023).

(2) The Procedures for Notification, Prior Consultation, and Agreement (PNPCA) 2005

The PNPCA is an important process under the Mekong Agreement, consisting of 3 separate processes undertaken by MRC member countries namely, the process of (1) Notification, (2) Prior Consultation and (2) Specific Agreement. None of the processes involve approval or disapproval of a proposed project, it serves as a mechanism to support regional cooperation on water and resource use in the Mekong Basin (Mekong River Commission, 2005). The prior consultation process, part of the PNPCA, involves MRC Member Countries and stakeholders discussing and evaluating the benefits and risks of water-use projects on the Mekong River, particularly those with significant transboundary impacts. This process is one of five MRC Procedural Rules supporting the 1995 Mekong Agreement, which includes rules on water quality, data sharing, monitoring, flow maintenance, and cooperation. Moreover, this process offered opportunities for member countries to sit together and review the development projects of their sovereign neighbor, and to address

concerns over their territories and people (Mekong River Commission, 2005).

Details of the PNPCHA procedure are explained in **Figure 2.8**.



Remark: NMC = National Mekong Committee, MRC = Mekong River Committee, and MRC JC = Mekong River Committee Joint Committee

Figure 2.8 PNPCHA procedure for MRC member states

(Adapted on Mekong River Commission, 2016)

While the PNPCHA is a key tool for guiding procedures and enhancing cooperation among MRC member countries, its implementation faces challenges, particularly in the prior consultation process, namely, diverse

assessment standards (i.e., lack of clear definitions and lead to inconsistent technical standards and designs), inadequate funding (i.e., lack of address mechanism for benefit sharing), politicized stakeholder involvement (i.e., exaggerated claims about the impact), and absence in consultation (i.e., China has rarely participated, hindering resolution of these issues) (Yu & Chen, 2022).

(3) **The Mekong River Basin indicator framework (MRB-IF)**

MRB-IF is another tool that helps establish guidelines for determining which problems need to be addressed. Because the large number of indicators or parameters can lead to complexity and ambiguity in interpretation, affecting financial resources and extending processing times. Therefore, the MRB-IF establishes five key dimensions—social, environmental, economic, climate change, and cooperation—with 15 strategic, 53 assessment, and 182 monitoring indicators. These indicators align with SDGs and the 1995 Mekong Agreement goals, providing a comprehensive and unified approach to basin management and progress tracking within the MRC's 5-year development planning cycle (details in **Appendix B**) (Mekong River Commission, 2019).

2.5.3 Application of the Transboundary Agreement in the ASEAN Context

Transboundary impacts are a problem that tends to occur in long-term and recure. Lacking agreements, regulations, or laws to develop a resource management plan or the impact that occurs will only exacerbate the conflict and impede the achievement of sustainable development. For this reason, ASEAN member countries have issued a mutual agreement which consists of the Mekong River Agreement 1995

and the ASEAN Agreement on Transboundary Haze Pollution 2002. The application of the Transboundary Agreement in the ASEAN Context in each agreement can explain as follows:

(1) Agreement on the Cooperation for The Sustainable development of the Mekong River Basin (1995)

The tools developed to support the implementation and practice of the TbEIA, as outlined in **Table 2.10**, demonstrate that the 1995 Mekong River Agreement provides a comprehensive framework and convenient to implement. However, TbEIA still faces challenges in its implementation, including institutional and governance issues (e.g., limited basin-wide cooperation, insufficient consultation with the MRC, limited public involvement, and lack of professional expertise) as well as gaps in data and coordination (e.g., inadequate data collection, analysis, dissemination, and the absence of a comprehensive evaluation system) (Plengsaeng et al., 2014; Zhao et al., 2021). Additionally, the PNPCA process, applied to the Xayaburi, Don Sahong, Pak Beng, and Luang Prabang hydropower projects (Yu & Chen, 2022), has encountered practical challenges, as discussed in **Section 2.5.2 (3)**. Moreover, Ha (2011, p. 136) further highlighted that "*the MRC has, thus far, failed to fulfil its vision for the Mekong Basin. Sustainable development for the poorest Mekong residents still has a long way to go.*" If the national MRCs fail to collaborate on addressing these issues, it may lead to uneven development and severe long-term consequences. Therefore, both member countries and the MRC must

address these systemic shortcomings to ensure effective management of the Mekong's development, water resources, and the preservation of public legitimacy and trust. However, these cases offer valuable lessons for improvement. Continuing application both the MRC and PNPCA processes is essential for the sustainable management and conservation of the Mekong River Basin. Without them, the region risks unsustainable development, environmental degradation, and inter-country conflicts over water resources (Ha, 2011; Zhao et al., 2021). Overcoming these challenges is crucial for enhancing transboundary management and regional cooperation within the MRC context (Plengsaeng et al., 2014).

(2) The ASEAN Agreement on Transboundary Haze Pollution (2002)

The ASEAN Agreement on Transboundary Haze Pollution (AATHP) would build up ASEAN cooperation for lessening the future incidence of forest fires, and forming the region's haze-free zone would be the real metrics of success (Nazeer & Furuoka, 2017). On the other hand, the efforts were hindered because of respect for the sovereignty of nations or non-interference in member countries' domestic matters. There is also no clear mechanism for implementing AATHP (Subekti, 2020). Moreover, there are no penalties and no international law, while the intensity of the haze increases (Fongissara & Buddharaksa, 2022; Tan, 2005). Although the AATHP was launched to create rules and agreements that are certain to deal with forest and land fire problems, in 2023 there were still forest and land fires that were caused by forest and land burning (transboundary Haze-Free

ASEAN by 2020). It can be concluded that the expected outcome has not been achieved (Subekti, 2020). However, the AATHP is one of the agreements issued to manage the environment of ASEAN member countries to prevent future impacts and conflicts and to strengthen cooperation among ASEAN Member States. Moreover, an AATHP has provisions that are similar to Article 2.2 of the Espoo Convention, which states, "*Each Party shall take the necessary legal, administrative, or other measures to implement the provisions of this Convention...*" (p.3). This similarity emphasizes the commitment of ASEAN Member States to adopting legal and institutional mechanisms that enhance environmental governance and promote sustainable development across the region.

It can serve as a valuable starting point for the development of agreements and guidelines aimed at minimizing and preventing future challenges, including transboundary impacts, climate change, and the loss of biodiversity. These issues should be incorporated into the EIA system to align with the ASEAN Charter's goal of ensuring sustainable development for current and future generations, with a focus on the well-being, livelihood, and welfare of the peoples at the center of the ASEAN community-building process. This integrated approach will foster a more sustainable future for the region, both the environment and the people (ASEAN, 2008, Article 1.9).

2.6 Experiences related to transboundary impact issues in the context of Thailand (focusing on northern Thailand bordering to Lao PDR and TbEIA experience)

Based on data from the Pollution Control Department (2024), it was found that the environmental pollution situation in Thailand in 2023 is likely to increase compared to 2022, whether it be problems with water quality and resource management or air quality problems, especially the upper northern region. According to the Thailand State of Pollution Report 2023, the haze problem in the northern region has become severe and is likely to worsen. The report found that from January 1 to May 31, 2023, PM_{2.5} levels averaged 62 µg/m³. During this period, PM_{2.5} concentrations exceeded the standard on 112 days, and 109,035 hotspots were identified. The primary contributors to the rise in particulate levels are human activities, such as burning forest areas to expand agricultural land and burning agricultural waste for disposal. Moreover, this increase in pollution is partly due to transboundary haze (Pollution Control Department, 2020), as air pollutants emitted from any source can be dispersed through transboundary transport mechanisms. Meteorological conditions can facilitate the movement of air masses far beyond their point of origin, potentially causing adverse impacts on neighboring states or countries (Sirimongkolertkun, 2018). This is demonstrated by the research of Moran et al. (2019) and (Pollution Control Department, 2024), which found that smoke and transboundary haze problems remain prevalent in Thailand during the dry season (October to May) each year. Additionally, SRIRATTANA and PIAOWAN (2020) show that winds carry air pollutants from the coal power plant

through border districts in Nan Province from October to February each year, indicating that these districts are at high risk of SO₂ exposure from the plant's emissions.

It is evident that the concerns and potential impacts are linked across various dimensions (i.e., physical resources, ecological resources, human use values, and quality of life). While some impacts have not yet exceeded standard thresholds, raising awareness and implementing preventive measures is crucial (Somporn et al., 2023). In the Thai context, this issue of transboundary impacts remains a persistent challenge and there is no clear solution to deal with these problems. Although Thailand is not a direct polluter, the impact of emissions can inevitably pass through the country. Therefore, establishing a robust mechanism for addressing transboundary impacts through cooperation between the Parties of Origin and Affected Parties is essential to mitigate potential transboundary impacts and enhance transparency through international cooperation.

2.7 Overviews of IA system in Thailand and Lao PDR

2.7.1 Environmental Impact Assessment (EIA)

Large-scale infrastructure projects that provide basic services such as transportation systems, water supply systems, energy systems, or communication systems that established for ensuring the progress of national, and regional economies, improving the living environment of human beings, and overcoming natural obstacles (Flyvbjerg, 2014). Therefore, EIA have become policy tool implemented worldwide (Clarke & Vu, 2021; Larsen et al., 2018) for controlling significant anthropogenic impact, that have a negative impact on the environment and/or biodiversity (Damián & Zamorano, 2022).

As stated in **Table 2.11** that show definition of EIA, then the researcher can conclude that EIA is a policy tool for identifying and assessing both negative and positive adverse significant environmental impacts to collect information about the environmental impact that is likely to arise from proposed activities and communicate them to decision-makers and the general public for a collaborative approach to establishing appropriate mitigation measures for preventing and mitigating environmental impacts in every step of the project cycle before a decision on whether proposed activities should be approved or not.

Table 2.11 Definition of Environmental impact assessment (EIA)

Authors	Definitions
Department of the Environment (1989)	EIA is a technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming their judgements on whether the development should go ahead.
Jay et al. (2007)	EIA is the evaluation of the effects likely to arise from a major project (or other action) significantly affecting the environment. It is a systematic process for considering possible impacts prior to a decision being taken on whether or not a proposal should be given approval to proceed.
Office of Natural Resources and Environmental Policy and Planning (2021)	EIA is the study for forecasting environmental impact, both negative and positive impact from development projects or significant activities. Moreover, EIA has been used to establish the appropriate mitigation measures for preventing and mitigating environmental impacts for these projects or activities.

2.7.2 Strategic Environmental Assessment (SEA)

SEA was first introduced in the late 1980s (Nwanekezie et al., 2022) and was first put into practice through the National Environmental Policy Act of 1969 in the United States of America (Barbara et al., 2020). Namely, SEA is also becoming popular

in more than 60 countries, and almost all these countries have legal requirements as well as experience with SEA applications (Faith-Ell & Fischer, 2021).

According to Sadler (1996, p.27), provided the definition of SEA is a process for evaluating the environmental consequences of proposed policy, plan, or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations.

Partidário et al. (2008, p. 219), explained SEA as an instrument to enable integration of environmental and sustainable development issues into early stages of development policy and planning, to help design and assess preferred strategic options, and to validate final outcomes. SEA is a distinctive tool in relation to other tools such as project EIA, cumulative impact assessment, policy analysis or planning.

Barbara et al. (2020, p.4), defined SEA as a means of systematically evaluating the environmental and related socio-economic impacts and cumulative impacts of Policies, Plans and Programmes (PPP) to ensure that opportunities can be maximized, risks can be mitigated, and alternatives can be considered during the early stages of PPP development.

Moreover, SEA can be applied in a range of contexts and cover a wide range of activities for example, the SEA framework was integrated into climate change (Yang et al., 2021) and the Ecosystem-based approach (Pinkau & Schiele, 2021); Integrating the transboundary approach and SEA into the EA process (Öjendal et al., 2002); applying SEA in the earliest stage of land-use planning (Josimović et al., 2021). SEA also can integrate into other environmental assessment tools such as sustainability concepts and policy or planning or program (PPP) analysis to handle large-scale effects

at an early stage that arise from the proposed project or PPP, which effect may extend beyond the boundaries of the project (Sadler, 1996, p.18). Some countries are learning and working towards SEA as an environmental policy and this is driven through other international agreements and negotiations (i.e., the Espoo Convention, multilateral environmental agreements, Multilateral environmental agreements, Neuhardenberg Agreement, Procedures for Notification, Prior Consultation and Agreement).

Although the objective, perspective, and scope of SEA and EIA are distinct, both actually aim to evaluate and mitigate potential effects (more details in the comparison between SEA and EIA are described in **Table 2.12**).

Table 2.12 Comparative key message between SEA and EIA

	SEA	EIA
Objective	To promote sustainable development by stipulating sound environmental management into policies, plans, and programs	To minimize and mitigate environmental impacts on the projects level, by setting specific procedures and management standards
Scope	Identifies environmental impacts related to the policy, plan, or program for development	Identifies environmental impacts for a specific project and location
Perspective	Broad strategic perspective, more general environmental details	Narrow perspective, high level of site-specific detail
Type of process	Multi-stage, flexible and iterative process to suit the planning situation	Well-defined process, clear beginning, and end
Cumulative impacts	Early warning of cumulative impacts	Limited opportunity to review and address of cumulative impacts
Transboundary impacts	Provides early warning of transboundary impacts as well as any unintended consequences from the PPP	The transboundary impacts aspect is out of focus
Monitoring	Focuses on the outcomes of policy, plan, and program implementation	Focuses on measuring actual impacts

Source: Based on Barbara et al. (2020); International Centre for Environmental Management (2010)

SEA can aid in streamlining and concentrating the incorporation of environmental considerations, but it does not replace or lessen the requirement for project-level EIA (Barbara et al., 2020). Applying these both tools at an earlier stage and during the PPP development is advantageous for optimizing environmental and socioeconomic benefits toward achieving a country's sustainable development goal in terms of social, economic, governmental, and ecological aspects (Partidário et al., 2008), as well as tiering IA systems to a higher tier than previously.

2.7.3 EIA procedure in Thailand

However, activities or projects requiring an EIA in Thailand must follow the EIA procedure as stipulated in the Enhancement and Conservation of National Environmental Quality Act (No. 2) B.E. 2561 (2018). The EIA regulations and guidelines have been continuously developed and revised (ONEP, 2021), along with the guidance document "Environmental Impact Assessment in Thailand" (4th edition, 2021). The EIA process in the Thai context is presented in **Figure 2.9**.

Public participation is an important approach for the EIA process, especially in a transboundary context, because it provides an opportunity for those directly and indirectly affected not only to have the right to know about plans and programs but also the right to comment, have their comments taken into account, and be informed of the final decision (Peterson & Lahtvee, 2007). This approach is consistent with other UNECE conventions, most notably the Espoo Convention, which requires public consultation and other procedures that involve public participation (notification, confirmation of participation, preparation of EIA documentation).

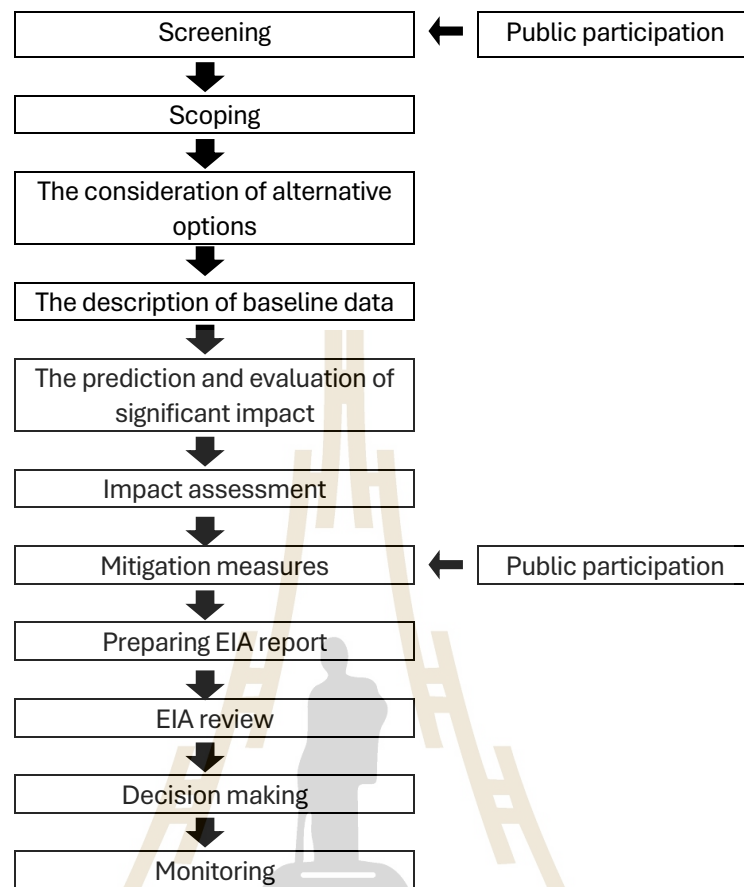


Figure 2.9 EIA procedure in Thailand

(Adapted based on NEQA, 1992, 2018)

To this end, the EIA report, which covers all dimensions of impacts and follows the minimum requirements of guidelines, is considered an important part of mitigating significant impacts on the environment, the public, and human health in the development area, both directly and indirectly. For a more comprehensive assessment of impacts, especially for projects developed near borders and falling within the scope of activities listed in Annex I to the Espoo Convention, consideration of transboundary issues or the implementation of a TEIA is required.

Public participation is an important process. It can be said "No Public Participation No IA system" (Leekbhai & Poboon, 2018) because the inclusion of the views of the affected and interested public helps to ensure the decision-making process is equitable and fair and leads to more informed choices and better environmental outcomes (Sadler & McCabe, 2002). Therefore, public participation and consultation can be an appropriate starting point for good practice in implementing TEIA under the Espoo Convention. According to Csaba Kiss (2012), demonstrated that "*proper public participation improves relations between peoples and countries and prevents a transboundary conflict in the long run*" (p.19) including revealing transparency in the operation of the project proponent as well. As a result, initially introducing TEIA as a tool to foresee the adverse significant impact may help to push EIA and TEIA to the upper tiers.

2.7.4 EIA procedure in Lao PDR

The EIA procedure in Lao PDR is stipulated in the Decree on EIA (2000, 2010, and 2019), the Ministerial Instruction on the Process of IEE and ESIA for Investment Projects and Activities (No. 8029 and 8030/MONRE), and the Ministerial Agreement on the Endorsement and Promulgation of the List of Investment Projects and Activities Required to Conduct the Initial Environmental Examination or Environmental and Social Impact Assessment (No. 8056/MONRE). The EIA procedure in Lao PDR can be explained as follows:

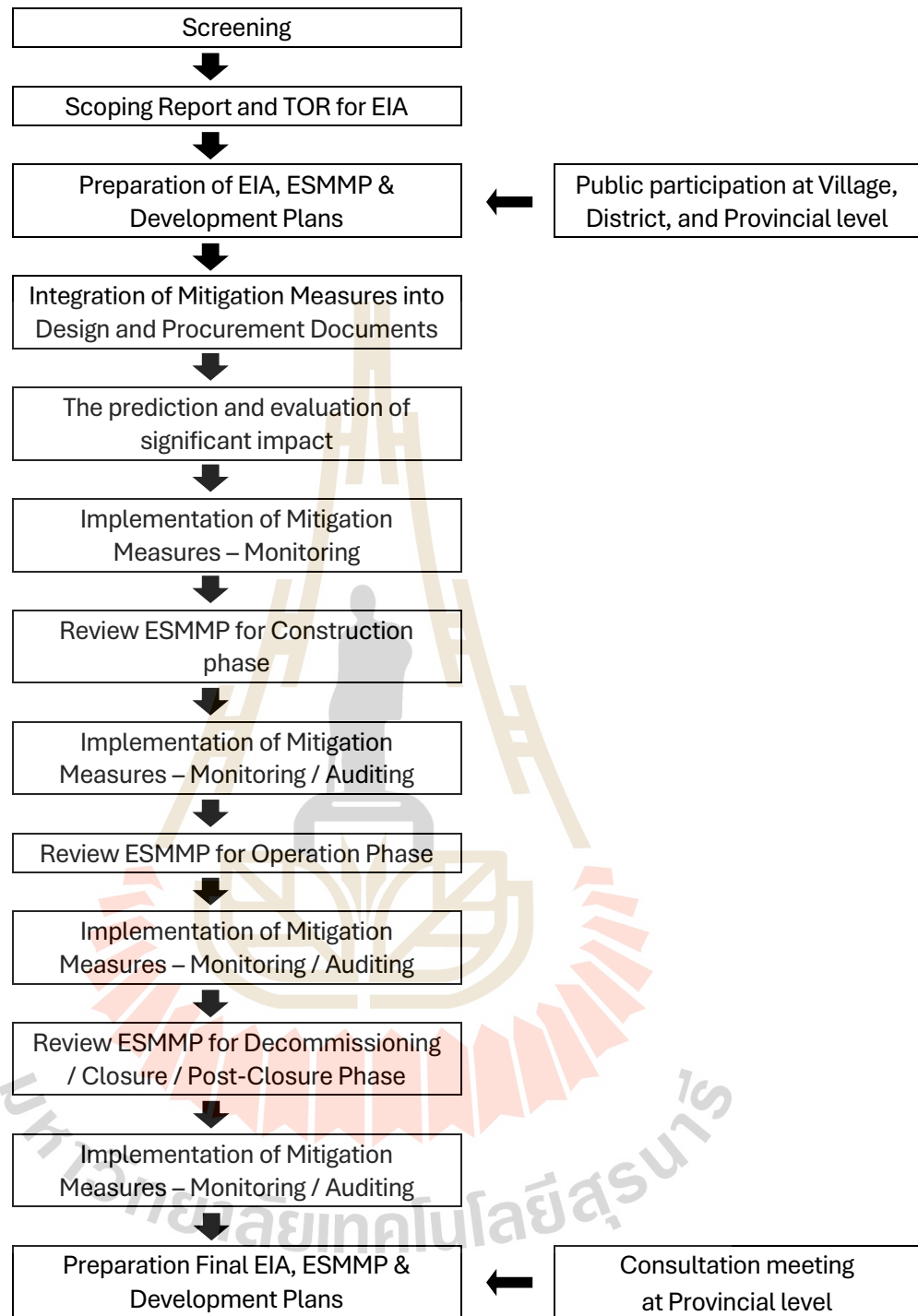


Figure 2.10 EIA procedure in Lao PDR

(Adapted based on Office of Natural Resources and Environmental Policy and Planning & PTT Public Company Limited, 2018)

Screening, the Project Developer refers to the list of projects subject to ESIA to narrow the application of EIA to those projects that may have significant environmental impacts, as outlined in the Ministerial Agreement on the Endorsement and Promulgation of the List of Investment Projects and Activities Required to Conduct the IEE or ESIA (No. 8056/MONRE).

Scoping and TOR, the likely environmental impacts and risks, including those on social conditions, health, and livelihoods, are initially identified. The Project Developer, with their consultant, prepares the Terms of Reference (TOR) for the EIA, which are submitted to MONRE for approval (Decree on EIA, Article 11) before the EIA studies begin. Scoping, a key phase in the process, provides details on the study area, project phases, baseline data, and identifies affected communities and stakeholders. The Scoping Report should contain a contents as following: executive summary, context of the Project, overview of the relevant policy, legal and institutional framework, project description and alternatives, description of the environment, key potential environmental impacts and mitigation measures, public consultation and disclosure, and conclusions and recommendations.

Preparation of the EIA Report and ESMMP, the impact assessment phase requires a more detailed analysis (social, economic, cultural, health) than the scoping phase to fully assess all project impacts. The EIA Report should include an executive summary, project context, legal framework, project description and alternatives, environmental and social aspects, impact assessment and mitigation measures, cumulative impact assessment, risk assessment, public consultation, and development plans. An Environmental and Social Management and Monitoring Report (ESMMP) is essential for mitigating negative impacts and enhancing positive ones throughout the

project lifecycle. The ESMMP, prepared separately as an appendix to the EIA Report, must be updated regularly to ensure effective environmental management. The project developer must revise the ESMMP every 2-5 years and submit it to MONRE for approval.

EIA reporting, both quantitative and qualitative information and data gathered or generated during the preparation of the EIA should be examined and presented in tables, figures, or other formats that support the interpretation of the data to make the material easier to understand such as inventory procedures, should be supplied in a distinct section. The report shall be disregarded if there is adequate proof that it was stolen from another investment project (EIA Decision 112/PM, Article 15).

2.7.5 IA system of Thailand vs. Lao PDR

Each country often has different perspectives, contexts, cultures, and traditions, which make the EIA process unique. **Figure 2.11** illustrates the differences in EIA procedures between Thailand and Lao PDR. Thailand began adopting EIA practices in 1992, supported by legislation specifying the types of projects requiring EIA and the agencies responsible. In 1979, the first EIA guideline was officially announced to assist stakeholders in implementing EIA-related legislation (the latest is Environmental Impact Assessment in Thailand, 4th edition, 2021), including an online EIA database. Lao PDR issued its first EIA regulation in 2000, followed by the 2002 Decree on the Implementation of Environmental Protection Law, which provided guidelines and standards outlining the roles and responsibilities of government authorities in the EIA process.

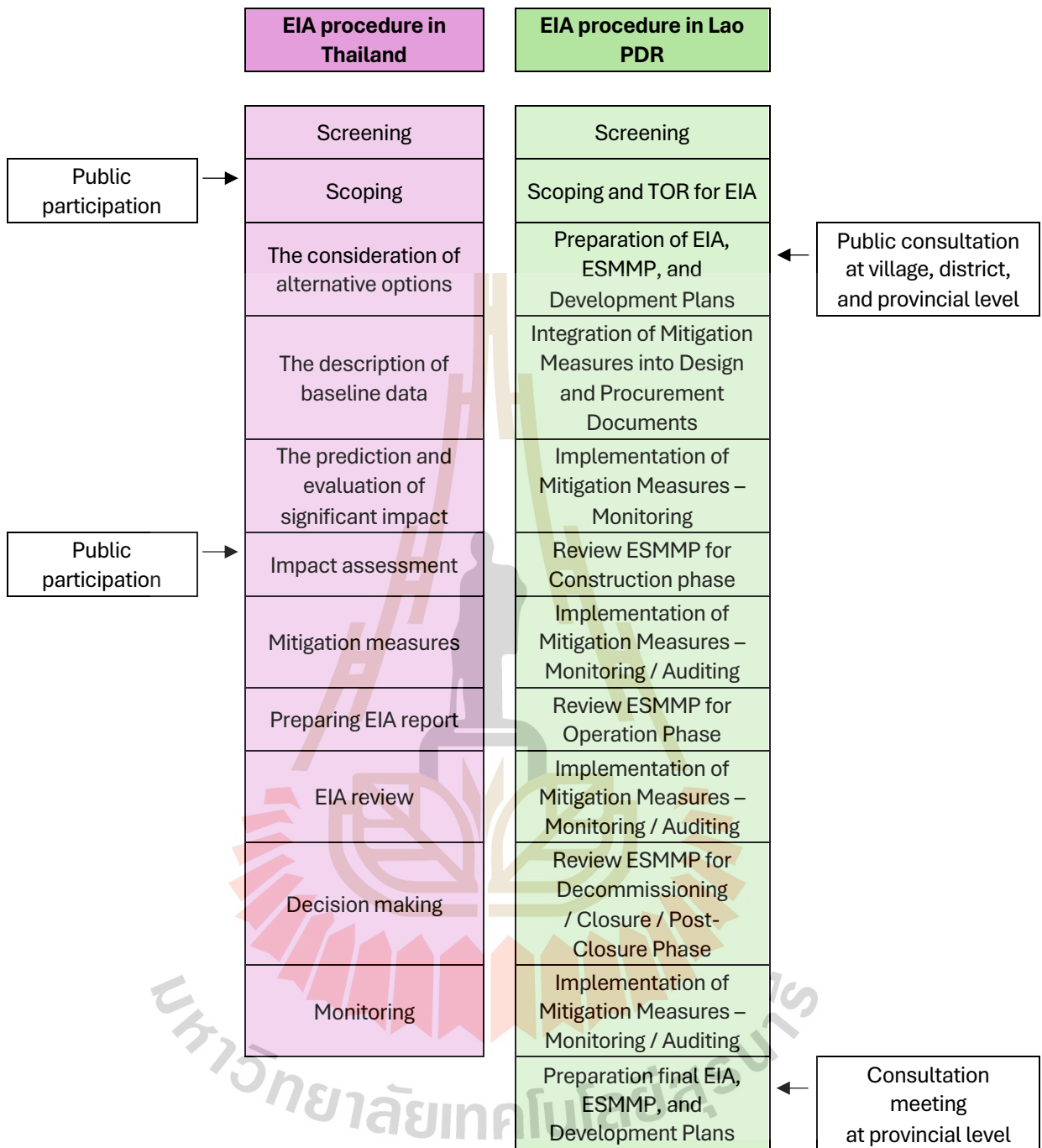


Figure 2.11 EIA procedure between Thailand and Lao PDR

(Adapted based on Office of Natural Resources and Environmental Policy and Planning & PTT Public Company Limited, 2018)

Furthermore, the official EIA guidelines for Lao PDR, published in 2012, offer Obviously, Thailand's procedures provide clear guidelines for conducting EIA. Prior to project implementation, baseline data are collected to enable a comparative analysis of scenarios with and without the project. This comparison helps in identifying and evaluating the significance of the project's impacts. While in Lao PDR, EIA procedures are organized according to project phases, with each phase undergoing a separate evaluation. The findings from each phase are then integrated into a comprehensive final report. In addition, the two countries differ in the stages of public participation and levels of involvement. To provide an overview and highlight the differences between each country, details of EA legislation, responsible institutions and authorities, EIA tools are presented in **Tables 2.13**.

Table 2.13 Overview of EA legislation, responsible institutions and authority, and tools of EIA between Thailand and Lao PDR

Country	Formal IA legislation	Responsible institutions	Authority responsibility	Tools of IA
Thailand	<ul style="list-style-type: none"> • NEQA, 1992 • NEQA, 2nd Edition, 2018 	<ul style="list-style-type: none"> • ONEP, Ministry of Natural Resources and Environment 	<ul style="list-style-type: none"> • The ONEP is responsible for EIA processes, categorizes, and sizes development projects requiring EIA studies. • examine the EIA report and relevant documents 	<ul style="list-style-type: none"> • IEE • EIA • EHIA
Lao PDR	<ul style="list-style-type: none"> • EPL (Revised Version) No: 29/NA, Vientiane Capital City, 2012 	<ul style="list-style-type: none"> • Ministry of Natural Resources and Environment (MONRE) • The Provincial Department of Natural Resources and Environment (PONRE) 	<ul style="list-style-type: none"> • The duties of MONRE for reviewing, monitoring, and approving the documents and activities carried out by the project developer 	<ul style="list-style-type: none"> • IEE • ESIA

Source: Adapted based on Office of Natural Resources and Environmental Policy and Planning and PTT Public Company Limited (2018)

In Thailand, the legislative framework clearly defines every detail for implementing EIA, including the types of activities, criteria, implementation approach, EIA report content, and penalties. However, transboundary issues are not yet addressed within Thai EIA legislation. In contrast, the EIA system in Lao PDR includes cumulative impact assessments and transboundary EIA for investment projects that may affect other projects or create impacts beyond national borders. This demonstrates a more comprehensive approach, despite Lao PDR adopting EIA regulations later than Thailand (Swangjang, 2018) (Table 2.14). While Thailand has well-defined provisions, obligations, and guidelines, structural, organizational, and interdisciplinary cooperation challenges persist, affecting the integration of the IA/EIA system in decision-making processes.

Table 2.14 Weaknesses and strengths of EA systems between Thailand and Lao PDR context

Countries	Weakness of EA systems	Strengths of EA systems
Thailand	<ul style="list-style-type: none"> • Insufficient public participation • Lack of human resources • Lack of integration of EIA into decision making • Lack of collaboration between different practitioners • Lack of consider on transboundary and cumulative impacts 	<ul style="list-style-type: none"> • Specify compliance performance in environmental mitigation and monitoring. • Specify process of public participation • EIA system has clear procedures and guideline in each project types. • EIA reports have been made available on online database
Lao PDR	<ul style="list-style-type: none"> • Inadequate planning procedures • Few trained and skilled personnel • Inadequate public consultation • Lack of environmental data • Weak follow-up and monitoring • Unavailable on online database 	<ul style="list-style-type: none"> • Fully incorporated public involved in public participation, monitoring of compliance, the opportunity to revise mitigation and monitoring, together with the identification of the biodiversity offsets. • Consider transboundary impacts

2.8 Comparison of the Espoo Convention and current ASEAN agreements

In dealing with transboundary impact, there are differences, especially when comparing legislative instruments between the member states of the Espoo Convention context and the ASEAN context. The Espoo Convention implementation practice in dealing with transboundary impacts covers a broader range of dimensions, comparing to the ASEAN agreements. It was observed that the Mekong agreement aligns closely with the Espoo Convention as it was used as one of the tools in developing the TbEIA guidelines. Both Espoo and the ASEAN agreements provide similar elements requiring special considerations, e.g. notification, confirmation of participation, consultation between the parties (regarding the Espoo Convention); and notification, prior consultation, and agreement through the PNPCA process under the Mekong Agreement, as shown in **Table 2.15**.

In addition, concerning the types of projects requiring EIAs in the ASEAN context focusing on Thailand and Lao PDR (**Table 2.16**), it was found that both Thailand and Lao PDR's legislations have provided lists of activities, which are similar to the list of activities under the Espoo Convention. This suggest that there could be compatibility of activities, which ASEAN countries can learn from the TEIAs of proposed projects/ activities as experienced in the ratifies countries to the Espoo Convention. Also, it could suggest that the perspectives on prioritizing significant impacts among Thailand and Lao PDR are not exactly the same. As such, it is essential that there should be a scope that both countries, including ASEAN member countries, agree that they look through the same lens. Hence, if collaborations on addressing transboundary impact and lists of proposed activities can be initiated, building

dialogues to discuss through conferences and workshops may help strengthening the value of the TEIA process (Sano et al., 2016). This could contribute to the development of effective IA systems in both countries, expanding to the ASEAN context e.g. issuing guidelines that are specific, suitable, and coverage impact in various dimensions for the Thailand and Lao PDR regarding the transboundary impact consideration and assessment.



Table 2.15 The key elements focused on the Espoo Convention, ASEAN Agreement on Transboundary Haze Pollution (AATHP) and Mekong River Agreement

	The member states of the Espoo Convention context	ASEAN context	
	The Espoo Convention	ASEAN Agreement on Transboundary Haze Pollution (AATHP)	Mekong River Agreement
Objectives/ Goals	To promote sustainable development, enhance international cooperation on EIA, prevent and mitigate significant adverse environmental impacts, incorporate environmental considerations early in decision-making, and improve information quality for environmentally sound decision-making.	To prevent, monitor, and mitigate land and forest fires to control transboundary haze pollution through concerted national efforts, regional and international cooperation in the context of sustainable development.	To promote cooperation among riparian states in sustainable development, equitable resource use, and conservation among riparian states, including protecting the environment, aquatic life, and ecological balance from harmful impacts through proactive and coordinated actions to take appropriate remedial action without delay.
Keywords	<ul style="list-style-type: none"> - Transboundary environmental impact - Economic activities and their environment consequence - Sustainable Development - Stockholm Declaration - Decision-making process - International cooperation - International organization 	<ul style="list-style-type: none"> - Forest fires/ Transboundary haze pollution - Cooperation/ The spirit of solidarity and partnership - Exchange of information/ Consultation and Public participation/ Monitoring - No harm rule principle/ Precautionary principle - Sustainable Development 	<ul style="list-style-type: none"> - Water resource, Nature resource, Aquatic life - Cooperation - Sustainable Development - Notification, Prior consultation, Agreement (PNPCA) - Data sharing - Monitoring - Transboundary environmental impact

The member states of the Espoo Convention context		ASEAN context	
	The Espoo Convention	ASEAN Agreement on Transboundary Haze Pollution (AATHP)	Mekong River Agreement
Guideline for implementation	<ul style="list-style-type: none"> - Guidance on the Practical Application of the Espoo Convention - Guidance on notification according to the Espoo Convention - Guidance on Public Participation in Environmental Impact Assessment in a Transboundary Context 	<ul style="list-style-type: none"> - Not specified 	<ul style="list-style-type: none"> - Guidelines for Transboundary Environmental Impact Assessment in the Lower Mekong River Basin (TbEIA) - Guideline on the Procedures for Notification, Prior Consultation and Agreement (PNPCA)
Procedure needs special consideration	<ul style="list-style-type: none"> - Notification - Confirmation of participation - Consultation between the Parties 	<ul style="list-style-type: none"> - Not specified 	<ul style="list-style-type: none"> - Notification - Prior consultation - Agreement

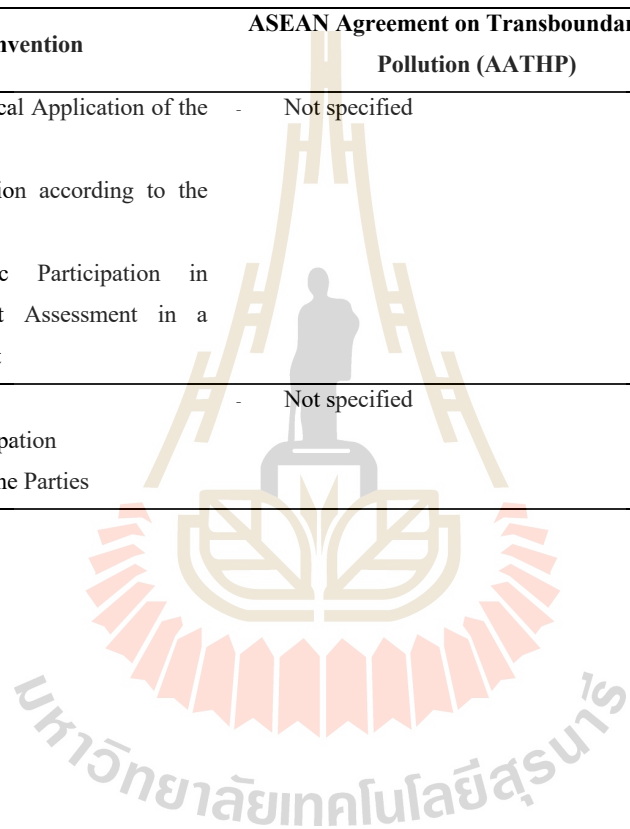


Table 2.16 Comparative list of activities between Espoo convention, Thailand's EIA, and Lao PDR's EIA

No.	List of activities from the Espoo convention	List of activities from Thailand's EIA	List of activities from Lao PDR's EIA
1	Crude oil refineries and installations for the gasification and liquefaction	(No.6) Petroleum refining industry (No.7) Natural gas separation or processing	(No.1.6) Oil refinery project
2	Thermal power stations	(No.18) Thermal power plant	(No.1.1) Hydro power plant project (No.1.3) Natural gas power plant project (No.1.4) Coal power plant project
	Nuclear power stations and other nuclear reactors	n/a	(No.1.2) Nuclear power plant project
4	Major installations for the initial smelting of cast-iron and steel and for the production of non-ferrous metal	(No.14) Iron or steel industry (No.15) Non-ferrous metals smelting or dressing or melting industry	(No.3.33) Steel and iron smelting factory (No.3.34) Non-Ferrous metal smelting factory (No.3.35) Steel processing factory
	Construction of motorways, express roads, and lines for long-distance railway traffic and airports	(No.20) Highway or road as defined by the law on highways. (No.21) Mass transportation system by rail (No.26) Air transportation system	(No.4.10) Road construction through national or provincial protected areas (No.4.11) New railway construction project (No.4.15) New runway airport construction project
7	Construction of a new road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes	n/a	(No.4.12) New Road construction project (national, provincial, district, urban, extra construction)
8	Large-diameter pipelines for the transport of oil, gas, or chemicals	(No.3) Petroleum and oil transportation via pipeline	(No.1.5) Gas and oil pipeline project
9	Trading ports and inland waterways	(No.22) Port (No.23) Recreation Port	(No.4.26.) Port construction project

No.	List of activities from the Espoo convention	List of activities from Thailand's EIA	List of activities from Lao PDR's EIA
10	Waste-disposal installations for the incineration, chemical treatment, or landfill of toxic and dangerous wastes	(No.17) Central waste treatment plant according to the Factory Act	(No.3.50) Disposal of solid waste producing hazardous. (No.4.22) Incinerator for industrial solid waste project
	Waste-disposal installations for the incineration or chemical treatment of non-hazardous waste	n/a	(No.3.51) Solid waste treatments and environment management
11	Large dams and reservoirs	(No.32) Irrigation	(No.2.3) Irrigation construction project (No.4.19) Embankment construction project
12	Groundwater abstraction activities or artificial groundwater recharge schemes where the annual volume of water to be abstracted or recharged	n/a	(No.5.1) The use of groundwater resources for industrial, agricultural, and urban consumption
13	Pulp, paper, and board manufacturing	(No.10) Pulp industry	(No.3.20) Paper and pulp production plant project
14	Major quarries, mining, on-site extraction and processing of metal ores or coal	(No.1) Mining as defined by the Mineral Act	n/a
18	Works for the transfer of water resources between river basins where this transfer aims at preventing possible shortages of water and where the amount of water transferred	(No.34) Inter-basin water diversion	n/a
	Waste-water treatment plants with a capacity	n/a	(No.4.90) Wastewater treatment plant project
21	Construction of overhead electrical power lines	n/a	(No.1.7) High voltage electrical power line project

Source: Based on UNECE (1991, 2017a); NEQA No.2 (2018)

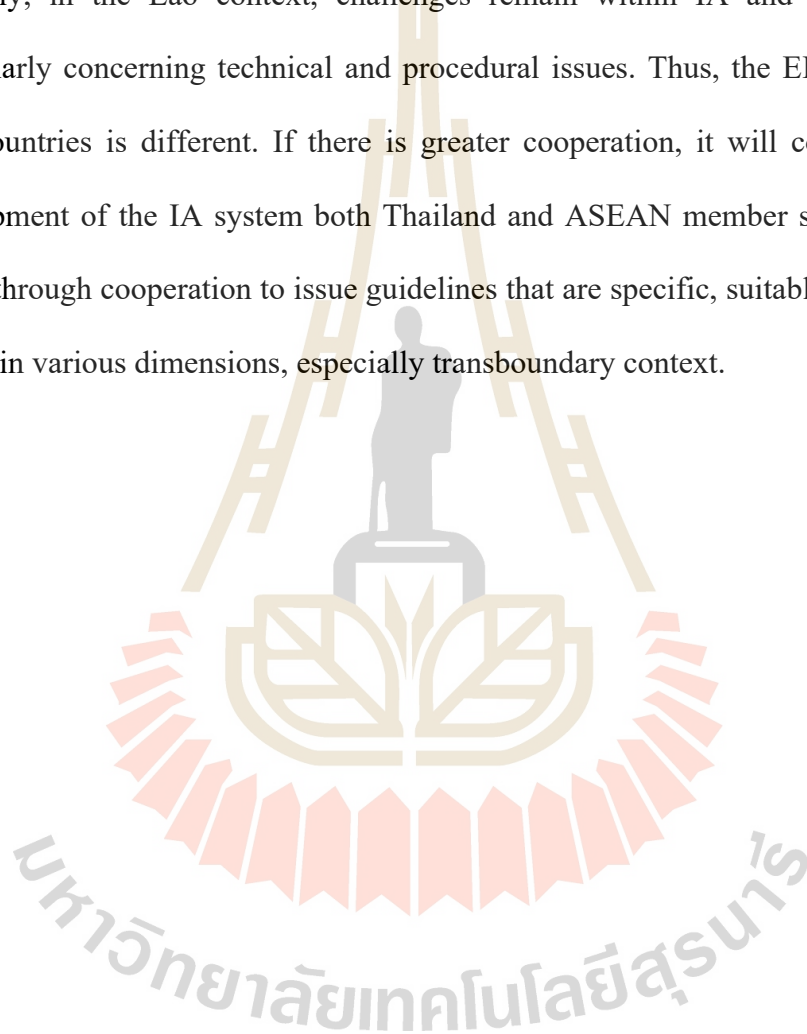
2.9 Summary

In dealing with transboundary impacts, where each country has different EIA procedures, both legislation and practice, the TEIA procedure under the Espoo Convention becomes a key tool to set out the framework for decision-making and apply to prevent, mitigate, and monitor significant adverse transboundary impacts from proposed activities. Including the Espoo Convention, mechanisms have been developed to ensure that the TEIA under the Convention is applied to prevent, mitigate, and control significant adverse environmental impacts arising from economic development in a comprehensive and transboundary context through a questionnaire for reviewing implementation by parties and the establishment of an implementation committee to review parties' compliance with their obligations under the Convention by providing the implementation committee report with the aim of helping them fully meet their commitments.

However, in the ASEAN context, transboundary issues can still be encountered. Although agreements have been issued to deal with transboundary impacts, namely the ASEAN Agreement on Transboundary Haze Pollution 2002 and Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin 1995, the efforts to deal with transboundary impacts were hindered because of respect for the sovereignty of nations or non-interference in member countries' domestic matters. There is also no clear mechanism and no penalties. When comparing legislative instruments between the member states of the Espoo Convention context and the ASEAN context. The Espoo Convention in dealing with transboundary impacts covers a broader range of dimensions when compared to agreements in the ASEAN context

that still face legislative instruments that separate issues, not yet interdisciplinary for considering transboundary issues.

In addition, in Thailand, although the legislative framework clearly defines every detail for implementing EIA, transboundary issues are not yet addressed. Similarly, in the Lao context, challenges remain within IA and EIA processes, particularly concerning technical and procedural issues. Thus, the EIA procedure in both countries is different. If there is greater cooperation, it will contribute to the development of the IA system both Thailand and ASEAN member state to be more robust through cooperation to issue guidelines that are specific, suitable, and coverage impact in various dimensions, especially transboundary context.



CHAPTER 3

METHODOLOGY

As described in **Chapter 1**, this study aims at reviewing the key concept of the Espoo Convention and memorandum agreements in ASEAN countries, analyzing the gaps of experiences implementing the Espoo Convention in ratified countries, experiences dealing with transboundary impact in the ASEAN context, in order to identify key issues influencing the achievement of transboundary environmental impact assessments (TEIA), and to establish a roadmap to implement learning experiences from the Espoo Convention in ASEAN countries (i.e. Thailand bordering to Lao PDR). A qualitative research approach mainly focusing on documentary analysis, has been applied to interpret and understand complex reality phenomena, concepts, opinions, and experiences (Mack, 2005), leading to the final findings and recommendations, which are linked to objectives and research questions. This chapter provides explanation on how the research was conducted regarding the research question and conceptual framework, research design and methodology, sources of data, data collection, data management and data analysis.

3.1 Research conceptual framework

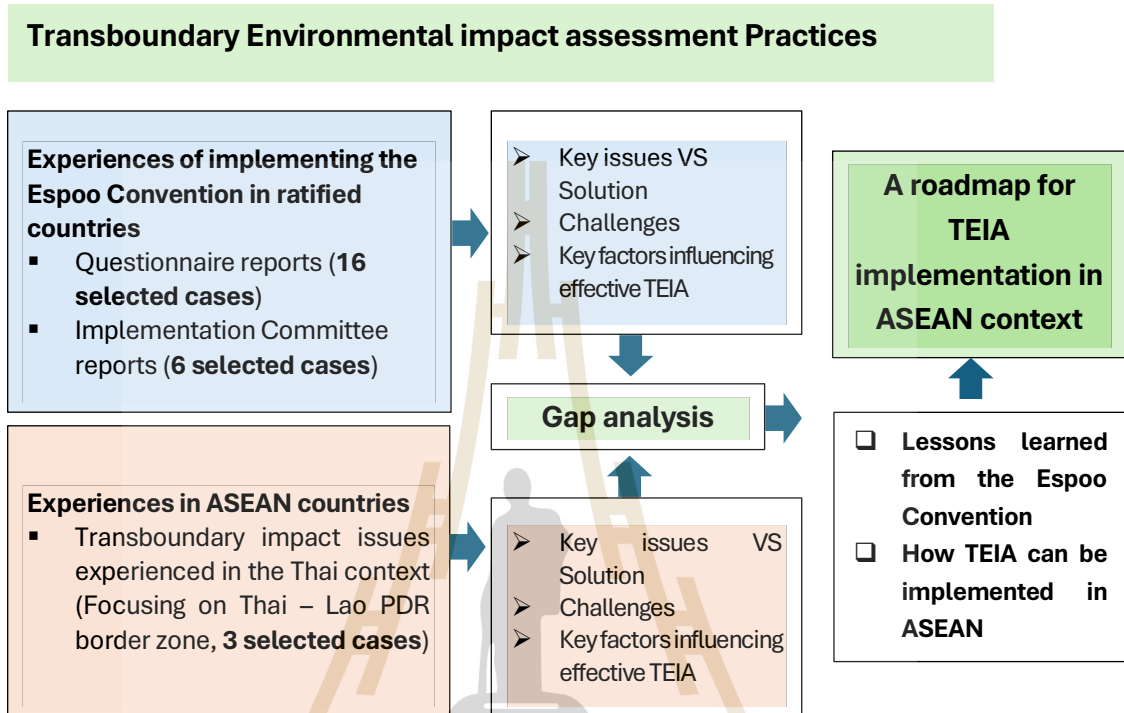


Figure 3.1 Research conceptual framework

In order to investigate how the concept of Espoo Convention can be applied into practice among the ASEAN countries, learning from the experiences of the implementation are essential. The 16 cases of questionnaire reports as responded from the ratified countries to the Convention are selected based on their detailed and relevant information on key aspects of TEIA, including procedures and good practices to explore the key issues, solutions, challenges and key factors influencing the effectiveness of TEIA, along with the 6 cases of the committee reports. In terms of the Thai context, implementation of the TEIA is considered limited (Plengsaeng et al., 2014; Subekti, 2020; Zhao et al., 2021), although the 1995 Mekong River Agreement (e.g., with Lao

PDR) has been established, additionally, as well as the 2002 ASEAN agreement related to transboundary haze pollution. Nevertheless, there have been research case studies related to in transboundary impact issues having been conducted, and therefore, three of the cases are selected to explore in this study. As demonstrated in **Figure 3.1**, implementing TEIA experiences refined from the ratified countries are applied as a framework of gap analysis to extract a roadmap for ASEAN countries, i.e. Thailand as an example in this research.

3.2 Research design and methodology

This study is conducted based on qualitative research approach. It was noted that qualitative research has the ability to interpret complex reality phenomena for better understanding, as it can help identifying intangible factors e.g. behaviors, opinions, experiences, and problem issues (Mack, 2005), which cannot be measured quantitatively. Qualitative research is also an inductive process in generating knowledge from real world experiences (Creswell, 2007). Therefore, in order to answer the research questions on what the key concept of the Espoo Convention and memorandum agreements in ASEAN countries are, and how learning experiences of Espoo Convention implementation in ratified countries can be translated into practice for the ASEAN context; key issues influencing the achievement of transboundary environmental impact assessments (TEIA) are considered along with good practice experience prior to the establishment of a roadmap on implementing TEIA in ASEAN countries (focusing on Thailand bordering to Lao PDR). **Table 3.1** presents research methodologies regarding research questions in line with data sources, collection and analysis.

Table 3.1 Research questions, data sources, collection and analysis

Research questions	Sources of Data	Data collection methods	Data analysis	Remarks
<p>1: How is the Espoo Convention applied and implemented in the parties ratified to the Convention? – and what challenges, lessons learned, and the key elements influencing the achievement of transboundary impact assessment under the Convention?</p>	<p>: 16 cases of questionnaire reports (see Table 3.3)</p> <p>: 6 cases of Implementation committee report (see Table 3.4)</p> <p>: Draft seventh review of the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context</p>	Documentary analysis	<p>Step1: Coding (inductive codes focusing on problems/ issues vs solutions)</p> <p>Step 2: Thematic analysis</p>	Themes derived from the sets of codes led to a framework on the Espoo Convention implementation
<p>2: In the ASEAN context, what are the lessons learned from experiences in dealing with transboundary impact?</p>	<p>: Relevant literatures having reviewed the experiences in ASEAN transboundary impact experiences</p> <p>: ASEAN practice of the selected 3 cases in this study (see Table 3.5)</p>	Documentary analysis	Deductive / Inductive Coding & Thematic analysis	<p>- Characterise the ASEAN issues by deductive coding</p> <p>- Take an established framework on Espoo Convention implementation as deductive codes for investigating the ASEAN experiences</p> <p>- Use inductive codes to characterise additional issues found in ASEAN experiences</p>
<p>3: What are the key aspects as learned from the implementation of the Espoo Convention to be taken into account for TEIA in Thailand? (i.e., How best to implement TEIA in Thailand)?</p>	Themes (established based on issues framework & solutions from Espoo; issues from the Thai's case studies)	Documentary analysis	Gap analysis by Aligning themes from Asean context with the themes obtained from Espoo experiences (the issues & solutions after implementing the Convention of the UNECE countries, prior to apply the solution from Espoo coding to provide recommendations for ASEAN Context	

3.3 Source of data

Documentary analysis is the main data collection method applied in this study, to investigating experiences related to the implementation of the Espoo Convention in UNECE and non-UNECE member countries. Meanwhile, experiences in ASEAN countries were explored and investigated through literatures, relevant documents, and existing memorandum agreements on dealing with transboundary impact issues. Therefore, it is essential to consider sources of data based on classifying criteria of data sources. Nichols et al. (2009) suggested that exclusion and inclusion criteria should be considered in classifying sources of data. As such, this study has applied these principles in selecting materials for the investigation as follows:

- (1) **Exclusion criteria:** non-Thai and non-English languages legislations, guidelines, documents, research, and articles and unreliable or unofficial database and website and
- (2) **Inclusion criteria** were divided into four main groups (A) a) Texts of conventions, agreements, or legislation; b) Guidelines or manuals; c) Implementation experiences; and d) Other relevant documents or data that available through online databases, all of which pertain to the transboundary context in UNECE and non-UNECE member countries, ASEAN countries, and the Thai context, as shown in **Table 3.2**.

Table 3.2 Categories and sources or references of documents investigated in this study under the inclusion criteria

The ratified countries experiences	Reference/ URL	The ASEAN experiences	Reference/ URL
a) Texts of conventions, agreements, or legislation		a) Texts of conventions, agreements, or legislation	
- Convention on Environmental Impact Assessment in a Transboundary Context (The Espoo Convention)	UNECE (2017)	- ASEAN Agreement on Transboundary Haze Pollution (AATHP)	ASEAN (2002)
- Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (SEA)	United Nations (2003)	- The Agreement on The Cooperation for The Sustainable Development of The Mekong River Basin (Mekong agreement)	MRC (1995)
b) Guidelines or manuals		b) Guidelines or manuals	
- Guidance on the Practical Application of the Espoo Convention	UNECE (2006)	- Guidelines for TbEIA in the Lower Mekong River Basin	MRC (2022)
- Guidance on notification according to the Espoo Convention	UNECE (2009)	- Guidelines on Implementation of the Procedures for Notification, Prior Consultation and Agreement	MRC (2016)
- Guidance on Public Participation in Environmental Impact Assessment in a Transboundary Context	UNECE (2009)		
c) Implementation experiences		c) Implementation experiences	
- Questionnaire for the Report of the Parties on the Implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the Period 2019–2021	UNECE (2024)	- EIA report on 500 Kv electricity transmission system project for the Hongsa Lignite Power Plant Project (Nan to Mae Moh)	Kasetsart University (2009)
- Implementation Committee reports (Findings and recommendations on compliance) in the Period 2019–2023	UNECE (2024)	- Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on Mekong Mainstream in 2022	Maharakham University (2023)
- Implementation of the Convention on Environmental Impact Assessment in a Transboundary Context (2016–2018): Sixth Review	UNECE (2021)	- The Development of Community-led Health Impact Monitoring, Nan Province Thailand: A Case of transboundary Pollution from Hongsa Power Plant, Lao PDR	Somporn et al. (2023)
d) Other relevant documents or data that are available through online databases		d) Other relevant documents or data that are available through online databases	
- Key resources on Implementation Committee	https://unece.org/environmental-policy/environmental-assessment/implementation-committee	- The official ONEP website for EIA report in Thai context	https://www.onep.go.th
		- MRC official website for information about agreement and guideline	https://www.mrcmekong.org
			http://tmstudy.onwr.go.th
		- Information on Thailand hydropower projects	

3.4 Data collection

Documentary analysis is a qualitative method that is highly flexible in handling relevant data, while it is considered reliable because the data can be traceable. It is a systematic process having been used in multidiscipline such as business, political science, sociology (Lu et al., 2023), including impact assessment (Walker et al., 2023). This approach allows researchers to investigate information in various types of documents (i.e. printed, electronic pattern, for example, published journal articles, fact sheets, implementation reports, annual reports, policy documents, etc.).

In order to seek for answers responding to the research questions raised in this study, the documentary analysis process can be conducted based on investigating relevant experiences in dealing with transboundary impact through the implementation experiences under the Espoo Convention in both UNECE and non-UNECE member states;) the ASEAN context in dealing with transboundary impact issues; and the Thai context in dealing with transboundary impact issues (focusing on Thailand bordering to Lao PDR). The details are as follows:

3.4.1 The implementation experiences under the Espoo Convention in both UNECE and non UNECE member countries

Learning from the implementation experiences under the Espoo Convention involves investigating experiences which are delivered through two sources of data; (1) the implementation experiences in each party based on questionnaire responses from ratified countries, and (2) the implementation committee reports as observed and commented by the UNECE Implementation Committee.

(1) Questionnaire reports responded by ratified countries

Referring to **Chapter 2**, the Questionnaire report is expected to provided data on how TEIA has been applied regarding the Espoo Convention in the ratified countries (UNECE, 2022b). This study has purposively focused selection of the 16 cases the ratified countries responded their implementation experiences through the "Questionnaire for the Report of the Parties on the Implementation of the Convention on Environmental Impact Assessment in a Transboundary Context" (see **Appendix C** for full templates of the questionnaire report), during 2019–2021 (**Table 3.3**).

Regarding the UNECE website serving as the source of data in this study, it was found that there were 40 parties (out of 45) completed the questionnaires and having sent back their responses. However, only the 16 parties have provided information on the implementation of procedures, good practices, and challenges. This is considered crucial because the reports allow the researcher to obtain data on domestic regulations and legislation related to transboundary issues, with a specific focus on the TEIA procedure, the roles of relevant authorities under the Convention, and insights into the practical implementation of the TEIA procedure by each party. Therefore, the 16 cases as are the focus for data collection at this phase of the study.

The reports were delivered by the relevant countries regarding three different roles, namely; **i) as a Party of Origin (PO)** 11 reports: Albania, Belarus, Belgium, Czech Republic, Estonia, Hungary, Lithuania, Malta, Poland, Romania, Slovenia, **ii) as an Affected Party (AP)** 4 reports: Montenegro, Republic of Moldova, Spain, Switzerland, and **iii) non-Party (NP)** 1 report: Georgia, as shown in **Figure 3.2**.

as a Party of Origin 11 cases	as an Affected Party 4 cases	Non-Party 1 case
<ol style="list-style-type: none"> 1. Albania 2. Belarus 3. Belgium 4. Czech Republic 5. Estonia 6. Hungary 7. Lithuania 8. Malta 9. Poland 10. Romania 11. Slovenia 	<ol style="list-style-type: none"> 1. Montenegro 2. Republic of Moldova 3. Spain 4. Switzerland 	<ol style="list-style-type: none"> 1. Georgia

Figure 3.2 Selected experiences of the implementing the Espoo Convention
in ratified countries

มหาวิทยาลัยเทคโนโลยีสุรนารี

Table 3.3 Selected questionnaire reports for investigating experience of implementation under the Espoo Convention

No.	Countries	Questionnaire report	Role		
			PO	AP	NP
1	Albania	Questionnaire for the report of ALBANIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
2	Republic of Belarus	Questionnaire for the report of the Republic of Belarus on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
3	Belgium	Questionnaire for the report of BELGIUM – FEDERAL GOVERNMENT on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
4	Czech Republic	Questionnaire for the report of the Czech Republic on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
5	Estonia	Questionnaire for the report of ESTONIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
6	Hungary	Questionnaire for the report of HUNGARY on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
7	Lithuania	Questionnaire for the report of LITHUANIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
8	Malta	Questionnaire for the report of MALTA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
9	Republic of Moldova	Questionnaire for the report of the REPUBLIC of MOLDOVA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021		/	
10	Montenegro	Questionnaire for the report of Montenegro on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021		/	
11	Republic of Poland	Questionnaire for the report of the REPUBLIC OF POLAND on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
12	Romania	Questionnaire for the report of ROMANIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
13	Slovenia	Questionnaire for the report of SLOVENIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021	/		
14	Spain	Questionnaire for the report of SPAIN on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021		/	
15	Switzerland	Questionnaire for the report of SWITZERLAND on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021		/	
16	Georgia	Questionnaire for the report of Georgia on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021			/

Remark: PO = Party of Origin; AP = Affected Party; NP = non-Party

According to the questionnaire report, the Parties provided insights on their implementation processes and practical experiences by completing a questionnaire template as an example presented in **Figure 3.3**. Data from the questionnaire report are summarized in **Table 1E**, provided in **Appendix E**.

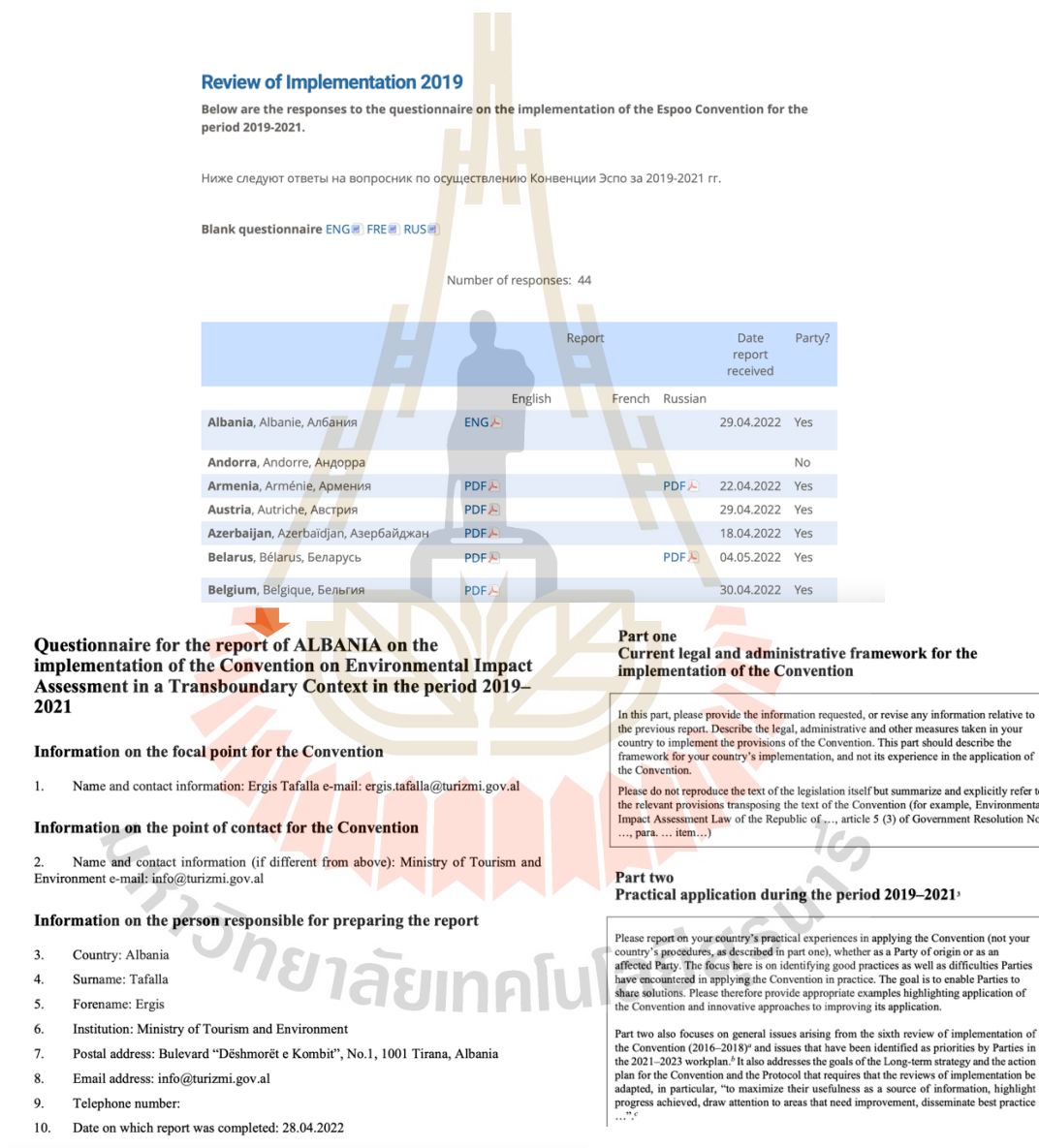


Figure 3.3 Example of questionnaire report completed by the Parties

(2) The implementation committee reports as observed and commented by the UNECE Implementation Committee

The implementation committee report is a document providing justification and recommendations of the committee on the experience of the parties whether their practices are complied with the Convention or not. These reports can be accessed via UNCEC website (accessible at <https://unece.org/environmental-policy/environmental-assessment/implementation-committee>). During the period of 2019–2023, in each session of the Implementation Committee to the Espoo Convention, at least one case has been brought forward for investigation. Therefore, the committee clarifies and assists Parties by providing advice and recommendations on procedural, technical, and administrative matters related to their practical experiences (Figure 3.4).

The screenshot displays the UNECE website interface for the Implementation Committee (Espoo Convention) session. The header includes the United Nations logo and the Economic and Social Council name. The page title is 'Implementation Committee (Espoo Convention) session'. The date is '04 - 07 October 2022'. The location is 'Palais des Nations Geneva Switzerland'. A 'Documents' table lists several documents, with the third document highlighted in a red box: 'ECE/MP.EIA/IC/2022/8 - Findings and recommendations on compliance by Serbia with its obligations under the Convention with respect to several mining-related activities in Karamanica, Popovica and Podvirovi and the Grot mine'. An arrow points from this document to its full title on the right: 'Findings and recommendations on compliance by Serbia with its obligations under the Convention with respect to several mining-related activities in Karamanica, Popovica and Podvirovi and the Grot mine'. The page also includes navigation links for 'Environmental Policy', 'Environmental Impact Assessment', and 'Implementation Committee (Espoo Convention)'. The footer mentions 'Prepared by the Implementation Committee'.

Figure 3.4 Example of the implementation committee report

Therefore, the “**Findings and recommendation section**” of the implementation committee reports, regarding their views, is considered essential sources for documentary analysis in this study. It appears the reports have begun to be published since 2022. As such, six selected cases from 2022–2023 have been considered, with some project types relevant to project development in ASEAN, as demonstrated in **Table 3.4**.

Table 3.4: The Implementation Committee report selected for investigating experience of implementation under the Espoo Convention

No.	Case Codes	Implementation committee report	References	Project type	Party of Origin (PO)	Affected Party (AP)
1	Case No. 1-ICR	Findings and recommendations on compliance by Serbia with its obligations under the Convention with respect to several mining related activities in Karamanica, Popovica and Podvirovi and the Grot mine	UNECE (2022a)	Major mining	Serbia	Bulgaria
2	Case No. 2-ICR	Findings and recommendations on compliance by Bosnia and Herzegovina with its obligations under the Convention and the Protocol with respect to the construction of Buk Bijela hydropower plant on the Drina River	UNECE (2023b)	Hydropower plant	Bosnia	Montenegro
3	Case No. 3-ICR	Findings and recommendations on compliance by Albania with its obligations under the Convention and the Protocol in respect of the planned construction of several small hydropower plants on the Cijevna River	UNECE (2023a)	Hydropower plant	Albania	Montenegro
4	Case No. 4-ICR	Findings and recommendations on compliance by Bulgaria with its obligations under the Convention with respect to the lifetime extension of units 5 and 6 of Kozloduy nuclear power plant	UNECE (2023c)	Nuclear power stations	Bulgaria	Romania

No.	Case Codes	Implementation committee report	References	Project type	Party of Origin (PO)	Affected Party (AP)
5	Case No. 5-ICR	Findings and recommendations regarding compliance by Belgium with its obligations under the Convention in respect of the lifetime extension of unit 1 of Tihange nuclear power plant	UNECE (2023d)	Nuclear power stations	Belgium	Germany
6	Case No. 6-ICR	Findings and recommendations regarding compliance by Czechia with its obligations under the Convention in respect of the lifetime extension of four reactors of Dukovany nuclear power plant	UNECE (2023e)	Nuclear power stations	Czechia	Austria, Poland, Germany, Slovakia

3.4.2 ASEAN Experiences in dealing with transboundary issues

(1) Relevant literatures having reviewed the experiences in ASEAN transboundary impact

In the context of ASEAN, relevant agencies have developed approaches to serve as tools for dealing with transboundary impacts, including the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (Mekong Agreement) and the ASEAN Agreement on Transboundary Haze Pollution (AATHP). However, in practice, these approaches have not been fully implemented or have been applied only within a limited scope. Therefore, to obtain practical insights and a broader perspective on the application of both agreements as tools, a study or review of relevant literature on ASEAN's experiences with transboundary impacts is essential. This review highlights their experiences, current situations and challenges in dealing transboundary impact issues within the ASEAN context, as summarized in **Table 3.5**.

Table 3.5 Relevant literature having reviewed the experiences in ASEAN transboundary impact

No	Title	Document type	References
1	Agreement on the cooperation for the sustainable development of the Mekong River Basin	Text of Agreement	Mekong River Commission (1995)
2	ASEAN agreement on transboundary haze pollution	Text of Agreement	ASEAN (2002)
3	Guidelines on the Implementation of the Procedures for Notification, Prior Consultation, and Agreement (PNPCA)	Guideline	Mekong River Commission (2005)
4	Guidelines for transboundary environmental impact assessment in the Lower Mekong River Basin	Guideline	Mekong River Commission (2023)
5	Technical report and recommendations to strengthen environmental impact assessment procedures in ASEAN	Report	ESCAP (2022)
6	MRC Annual Report 2022	Report	MRC (2023)
7	Understanding the 1995 Mekong Agreement and the five MRC Procedures: a handbook	Report	MRC (2020)
8	The Implementation of Agreement on Transboundary Haze Pollution in The Southeast Asia Region for Asean Member Countries	Research Article	Purwendah and Mangku (2018)
9	ASEAN cooperation on transboundary haze pollution: The perspective of institutional incremental change	Research Article	Charusombat (2023)
10	Review on ASEAN transboundary haze pollution agreement 2002: Problems and solutions	Research Article	Ghani et al. (2017)
11	Institutional Arrangements to Manage Transboundary Environmental Problems	Research Article	Jarusombat (2019)
12	Comparative review of EIA in the Association of Southeast Asian Nations	Research Article	Swangjang (2018)
13	Challenges to carry out transboundary environmental assessment in ASEAN countries	Research Article	Dávila et al. (2020)
14	Analysis on the Transboundary Impact Assessment System and Practice of Hydropower Development on the Main Mekong River	Research Article	Zhao et al. (2021)
15	ASEAN and transboundary haze pollution in Southeast Asia	Research Article	Jones (2006)

(2) Thai context in dealing with transboundary impact issues (focusing on Thailand bordering to Lao PDR)

Experiences on implementing transboundary environmental impact assessment (TEIA) in Thailand, or even in the ASEAN countries, are considered limited (Plengsaeng et al., 2014; Subekti, 2020; Zhao et al., 2021) . As such, it remains difficult to directly identify or examine TEIA procedures in this context. In this regard, secondary data which can link with the concept of TEIA procedures are reviewed based on the Mekong Agreement, and experiences in dealing with transboundary impacts as delivered through research works, and EIA report linked with transboundary context are considered the most relevant cases to investigate the lessons learned in the Thai – Lao bordering context, as listed in **Table 3.6**.

The project types of the three selected experiences are considered related to the list of activities in Appendix I combined with the general criteria in Appendix III of the Espoo Convention. These projects, if conducted within the context of UNECE member states, would require TEIA under the Espoo Convention. Therefore, it can be considered that the selected cases' experiences allow the researcher to explore how transboundary impacts can be managed if the Convention is applied.

Table 3.6 Three selected experiences in dealing with transboundary impact in the Thai context

Case codes	Title	Project type	Documentation type	Reference
Case No.1	EIA report on 500 Kv electricity transmission system project for the Hongsa Lignite Power Plant Project (Nan to Mae Moh)	Construction of overhead electrical power line	EIA report	Kasetsart University (2009)
Case No.2	Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on Mekong Mainstream in 2022	Hydropower plant	TEIA report	Maharakham University (2023)
Case No.3	The Development of Community-led Health Impact Monitoring, Nan Province Thailand: A Case of transboundary Pollution from Hongsa Power Plant, Lao PDR	Thermal power station	Research report	Somporn et al. (2023)
	Sub-projects under this project			
	⇒ Developing Digital Communication Tools on Mobile Application Platform for Community-led Health Impact Monitoring: A Case Study of Transboundary Pollution from Hongsa Power Plant, Lao PDR			Juntursima et al. (2023)
	⇒ Developing and using community surveillance database to prepare for dealing with cross border pollution problem Project			Assavarak et al. (2023)
	⇒ Use of chemical and biological indices for air pollution monitoring and development of community tools for air quality measurement Chaloem Phra Kiat District, Nan Province			Wiriyā et al. (2023)
	⇒ Mapping, Monitoring, and Assessing Impacts from Air Pollution from Coal-fired Power Plant on Community Health and Quality of Life in Nan Province			Phenrat et al. (2023)

The selected experiences help explain concerns and potential impacts related to transboundary issues in northern Thailand, particularly those that may arise from the project's operations near the border, such as air pollution, water resource depletion, biodiversity loss, and socio-economic disruptions affecting local communities, as outlined in **Table 3.7**.

Table 3.7 Concerns and potential impacts of project operation based on selected experiences

Selected cases	Concerns/ Potential impacts	Reference
Selected experience NO.1	- Loss of agricultural area - The risk of soil erosion, which can lead to surface runoff and erosion	Kasetsart University (2009)
Selected experience NO.2	- Abnormal changes in water conditions can disrupt fish migration - Ecological changes affect livelihoods along the Mekong River	Maharakham University (2023)
Selected experience NO.3	- Increased crop abnormalities (Plant Diseases) - Border districts are at risk of being affected by air pollution from point sources, which can have impacts on health, the economy, and society.	Somporn et al. (2023)

3.4.3 Learning from the experiences implementing the Espoo Convention: sketching a framework for gap analysis

Gap analysis framework has been sketched based on relevant literature, in connection with the issues vs solutions framework refined from the output of research question 1 (as briefed in **Table 3.1**). This can help identify key issues influencing the achievement of transboundary impact assessments, which the ASEAN context can learn from. This analysis involved comparing the desired situation from cases under the Espoo Convention (in both UNECE and non-UNECE member countries) with the current situation in ASEAN member states, focusing on Thailand. Additionally, procedural effectiveness criteria of impact assessment were applied as a basis concept to define key elements for effective process in EIA practice, in order to gather critical insights from the investigated selected cases. According to Chanchitpricha (2012), it was suggested that the factors that could influence *procedural effectiveness* are policy framework, political context, the roles of relevant institutions/ authorities, active public

participation, effective communication which deliver good understanding and information to related stakeholders; these elements are all related to the context where the projects are developed (Chanchitpricha, 2012; Chanchitpricha & Bond, 2013).

As such, procedural effectiveness criteria, developed by Chanchitpricha and Bond (2013, 2015), were applied to assist identify key issues influencing the achievement of the TEIA for investigating whether that impact assessment process in each selected experience was effectively and successfully applied or not (as shown **Table 3.8**).

Table 3.8 Key issues for gap analysis

Procedural effectiveness criteria	Key issues influencing the achievement of TEIA
(P1) Relevant policy framework	Economic activities, environment consequences, sustainable development, and national legal and administrative provision and policy
(P2) Institutional roles, collaboration, and infrastructure	International cooperation , international organization, decision-making, or developing anticipatory policy
(P3) Integrating concept or finding from transboundary impact experiences in the planning process	
(P4) Involvement of stakeholders or public participation in the process	
(P5) Delivering the transboundary impact approaches and information to participating stakeholder	Related to the concept of the Espoo Convention procedure (Notification, Consultation, Public participation)
(P6) Capacity of EIA in presenting as a sound and clear, understandable evidence for decision	
(P7) Delivering the EIA report to participating stakeholders	

Source: Developed based on Chanchitpricha and Bond (2013, 2015); UNECE (2017a) and relevant literature

The ASEAN experience in dealing with transboundary impact can be investigated along with the issues vs solutions framework as refined from the Espoo Convention implementing experiences, to identify key elements that are essential for implementing TEIA in the ASEAN context (focusing on Thailand bordering Lao PDR), presented as an example concept in **Table 3.9**.

Table 3.9 Gap analysis framework for identifying gaps in different experiences under transboundary context

Key issues	Current situation	Desired situation	Gap identified
	ASEAN context in dealing with transboundary impact (Focusing on Thailand bordering to Lao PDR)	TEIA implementation under the Espoo Convention (Both UNECE and non-UNECE member countries)	
Specific Legislative Framework (P1, P3)	Specific legislative framework under transboundary context, or experiences related to apply concepts and finding from TEIA to develop a national plan, and regulations to deal with transboundary issues.		The differences between the current situation and the desired situation that makes it not yet met the goal (find a solution and recommendation for closing the gap)
TEIA implementation (P1-P7)	Experiences on TEIA implementation under the Espoo Convention or experiences in dealing with transboundary impact issues.		
International cooperation (P2, P3)	International cooperation can illustrate an effective EIA authority's collaboration (i.e., through bilateral or multilateral agreement, consultation, or establishing working group) to deal with transboundary impact issues in each context.		
Data exchange/ Transparency (P5-P7)	Data exchange can contribute to knowledge and a good mutual understanding. Thus, clear and sound evidence will significantly assist the decision-makers and stakeholders to make decisions for consideration to approve or reject the proposed PPP.		
Public participation in transboundary context (P2-P7)	Public participation under TEIA implementation important for exchanging information and improving mutual understanding between stakeholders and project proponents.		

Source: Developed based on Chanchitpricha (2012); Chanchitpricha and Bond (2013, 2015); UNECE (2017a) and relevant literature

3.5 Data preparation and reduction

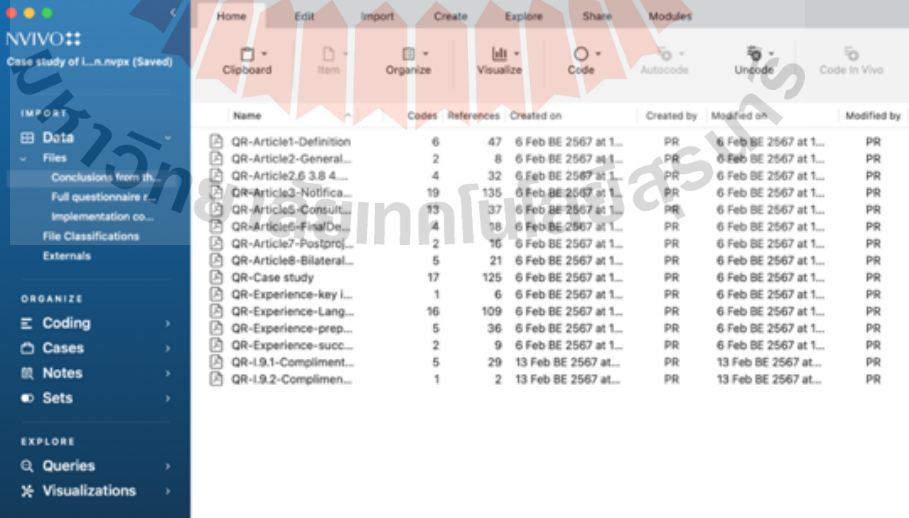
After collecting the data through literature review and documentary analysis, all relevant data from the "inclusion criteria" were prepared. Firstly, all relevant documents were organised and prepared by grouping files into specific folders by using the application "GoodNotes" (i.e., convention and protocol, research and article related to transboundary context, ASEAN agreement, etc.). GoodNotes is a note-taking application, so it's convenient to import these files into the app. Moreover, it allows to create, organise, and annotate articles using a stylus or keyboard (GOODNOTES, 2020). Therefore, all relevant documents were reviewed, highlighted for the key messages through this app. Then, the document from the above step was input into "Microsoft Word" to summarise key messages in order to collect and prepare initial codes that aligned with the research objectives and research questions. Results for this step serve as summary markers for the next round of data coding, prior to thematic analysis and interpretation for answering the research questions (Namey et al., 2008).

3.6 Data analysis

For the data analysis step, all relevant documents were reviewed through documentary analysis to obtain initial data for the data coding process. The codes established in each context were then categorized through thematic analysis in order to answer the research question. The steps of data analysis are as follows:

3.6.1 Preparing initial data

From the documentary analysis, selected experiences in different contexts were obtained, including 16 cases from questionnaire reports, 6 cases from implementation committee reports, and 3 cases related to experiences in dealing with transboundary impact in Thai context. All documents were thoroughly reviewed (Fereday & Muir-Cochrane, 2006), and each document or response was summarized to extract key messages to facilitate the coding process to be more clarity. The outcomes of this stage provided initial data for coding, which was then input into NVivo 14 software. The total file of initial codes contains two contexts: (1) implementation under the Espoo Convention in both UNECE and non-UNECE member states, (2) the ASEAN context in dealing with transboundary impact issues (focusing on Thailand's border with Lao PDR). All files were stored in the folders titled “Conclusions from the Questionnaire Reports,” “Summary of Findings from the Implementation Committee Report,” and “Summary of Findings Related to Experiences with Dealing with Transboundary Impacts in the Context of Thailand,” respectively (as shown in **Figure 3.5**).



Name	Codes	References	Created on	Created by	Modified on	Modified by
QR-Article1-Definition	6	47	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article2-General...	2	8	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article2.6 3.8 4...	4	32	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article3-Notifica...	19	135	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article5-Consult...	13	37	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article6-FinalDe...	4	18	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article7-Postpro...	2	16	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Article8-Bilateral...	5	21	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Case study	17	125	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Experience-key L...	1	6	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Experience-Lang...	16	109	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Experience-prep...	5	36	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-Experience-succ...	2	9	6 Feb BE 2567 at 1...	PR	6 Feb BE 2567 at 1...	PR
QR-I.9.1-Compliment...	5	29	13 Feb BE 2567 at...	PR	13 Feb BE 2567 at...	PR
QR-I.9.2-Complimen...	1	2	13 Feb BE 2567 at...	PR	13 Feb BE 2567 at...	PR

Figure 3.5 Input initial data into Nvivo 14 software

3.6.2 Data coding

In this study, a hybrid coding approach was used to conduct and deal with various data to gain insights from different contexts between the ratified countries under the Espoo Convention context and the ASEAN context in dealing with transboundary impact. Hybrid coding consists of two different approaches to coding, start with a deductive coding approach is a qualitative data analysis method by developing a set of a priori codes from concepts, theories, or research questions (Braun & Clarke, 2006; Swain, 2018), as shown in **Figure 3.6**. Then, inductive coding approach was added to develop codes directly from raw data (Fereday & Muir-Cochrane, 2006; Xu & Zammit, 2020) to obtain data coding related to experiences, challenges, issues, and solutions in dealing with transboundary impact under each context.

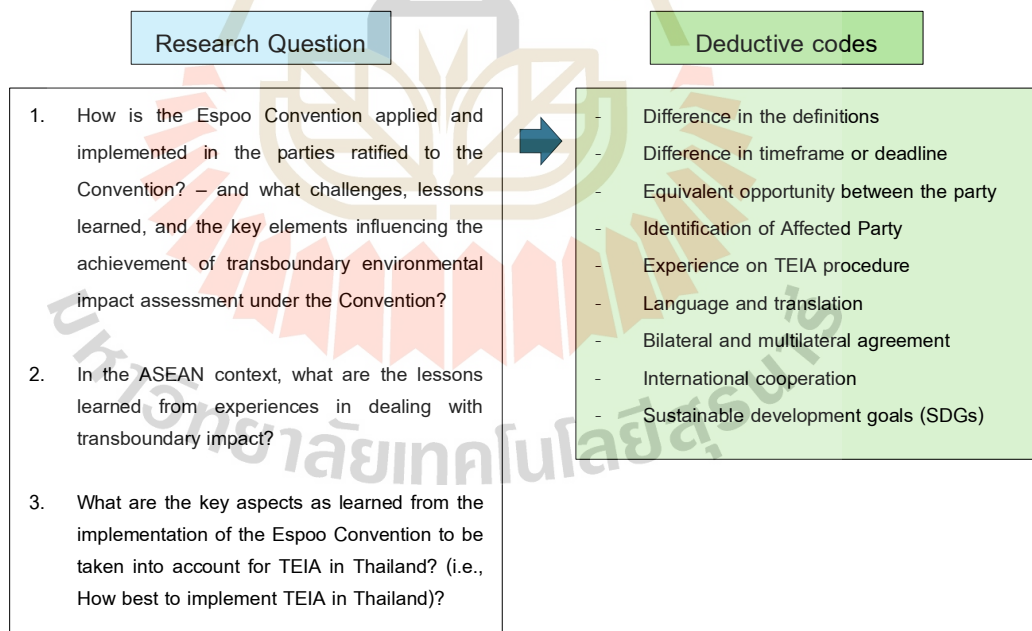
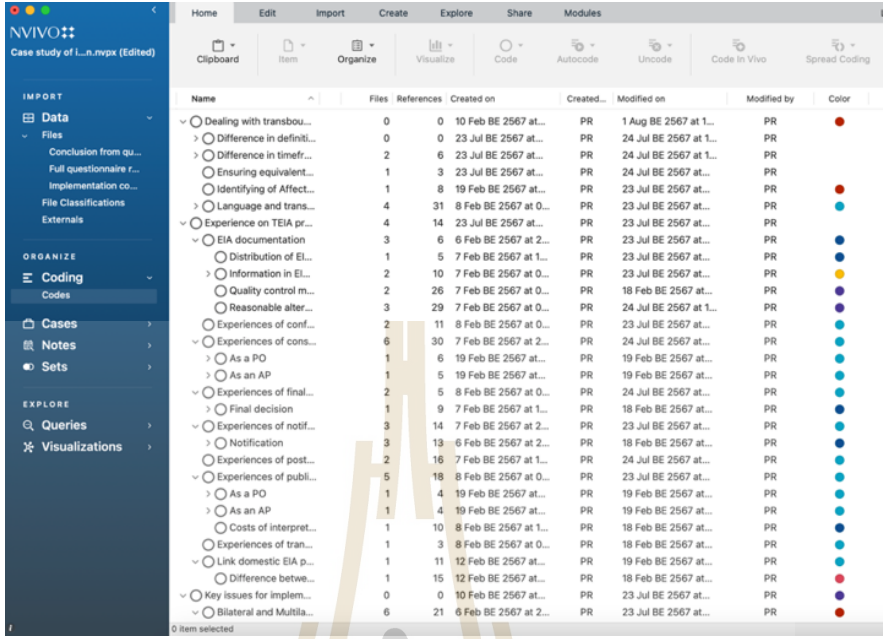


Figure 3.6 Step to develop deductive codes

If a segment of data matches one of the predefined a priori codes from the deductive approach, it is dragged to the match code. Conversely, if a data segment does not match any of the predefined codes, a new code is created, and the segment is assigned accordingly—this represents the inductive coding process, which helps identify additional insights. All codes established within the Espoo Convention context serve as a set of a priori codes and are subsequently applied deductively to the Thai context, following the same coding process. Finally, the codes from each context proceed to the next stage: thematic analysis.

3.6.3 Thematic Analysis

After data coding, the next step is to group similar codes into broader themes or patterns that capture significant insights to apply in answering to the research question. Thematic analysis is a type of qualitative analysis that allows for the identification, classification, and presentation of themes that relate to the data in order to interpret the simple description of the data for a deeper understanding (Bruch et al., 2007; Jones et al., 2022). This method is considered one of the most appropriate tools, initial data were interpreted, carefully scrutinised and categorised into themes, allowing for the connection of various concepts and their comparison with the data, ultimately contributing to the development of a qualitative data repository (Idrissi Gartoumi, 2024). To ensure clarity and coherence, all codes were refined, organized, and grouped into themes using NVivo 14 software, highlighting relationships and interconnections between them (Attride-Stirling, 2001; Jones et al., 2022; Naweed et al., 2022) (**Figure 3.7**).



Name	Files	References	Created on	Created...	Modified on	Modified by	Color
Dealing with transbou...	0	0	10 Feb BE 2567 at...	PR	1 Aug BE 2567 at 1...	PR	Red
Difference in definiti...	0	0	23 Jul BE 2567 at...	PR	24 Jul BE 2567 at 1...	PR	Red
Difference in timefr...	2	6	23 Jul BE 2567 at...	PR	24 Jul BE 2567 at 1...	PR	Red
Ensuring equivalent...	1	3	23 Jul BE 2567 at...	PR	24 Jul BE 2567 at...	PR	Red
Identifying Affect...	1	8	19 Feb BE 2567 at...	PR	23 Jul BE 2567 at...	PR	Red
Language and trans...	4	31	8 Feb BE 2567 at 0...	PR	23 Jul BE 2567 at...	PR	Red
Experience on TEIA pr...	4	14	23 Jul BE 2567 at...	PR	23 Jul BE 2567 at...	PR	Red
EIA documentation	3	6	6 Feb BE 2567 at 2...	PR	23 Jul BE 2567 at...	PR	Red
Distribution of EI...	1	5	7 Feb BE 2567 at 1...	PR	23 Jul BE 2567 at...	PR	Red
Information in EI...	2	10	7 Feb BE 2567 at 0...	PR	23 Jul BE 2567 at...	PR	Red
Quality control m...	2	26	7 Feb BE 2567 at 0...	PR	18 Feb BE 2567 at...	PR	Red
Reasonable alter...	3	29	7 Feb BE 2567 at 0...	PR	24 Jul BE 2567 at 1...	PR	Red
Experiences of conf...	2	11	8 Feb BE 2567 at 0...	PR	23 Jul BE 2567 at...	PR	Red
Experiences of cons...	6	30	7 Feb BE 2567 at 2...	PR	24 Jul BE 2567 at...	PR	Red
As a PO	1	6	19 Feb BE 2567 at...	PR	19 Feb BE 2567 at...	PR	Red
As an AP	1	5	19 Feb BE 2567 at...	PR	19 Feb BE 2567 at...	PR	Red
Experiences of final...	2	5	8 Feb BE 2567 at 0...	PR	24 Jul BE 2567 at...	PR	Red
Final decision	1	9	7 Feb BE 2567 at 1...	PR	18 Feb BE 2567 at...	PR	Red
Experiences of notif...	3	14	7 Feb BE 2567 at 2...	PR	23 Jul BE 2567 at...	PR	Red
Notification	3	13	6 Feb BE 2567 at 2...	PR	18 Feb BE 2567 at...	PR	Red
Experiences of post...	2	16	7 Feb BE 2567 at 1...	PR	24 Jul BE 2567 at...	PR	Red
Experiences of publ...	5	18	8 Feb BE 2567 at 0...	PR	23 Jul BE 2567 at...	PR	Red
As a PO	1	4	19 Feb BE 2567 at...	PR	19 Feb BE 2567 at...	PR	Red
As an AP	1	4	19 Feb BE 2567 at...	PR	19 Feb BE 2567 at...	PR	Red
Costs of interpret...	1	10	8 Feb BE 2567 at 1...	PR	18 Feb BE 2567 at...	PR	Red
Experiences of tran...	1	3	8 Feb BE 2567 at 0...	PR	18 Feb BE 2567 at...	PR	Red
Link domestic EIA p...	1	11	12 Feb BE 2567 at...	PR	19 Feb BE 2567 at...	PR	Red
Difference betwe...	1	15	12 Feb BE 2567 at...	PR	18 Feb BE 2567 at...	PR	Red
Key issues for implem...	0	0	10 Feb BE 2567 at...	PR	23 Jul BE 2567 at...	PR	Red
Bilateral and Multila...	6	21	6 Feb BE 2567 at 2...	PR	23 Jul BE 2567 at...	PR	Red

Figure 3.7 Data analysis through hybrid coding under NVivo 14 software

The resulting themes and codes provide essential insights into key aspects, challenges, and lessons learned from the implementation of the Espoo Convention, as well as critical factors influencing the achievement of TEIA, in alignment with the research questions (Braun & Clarke, 2006).

3.7 Data validation

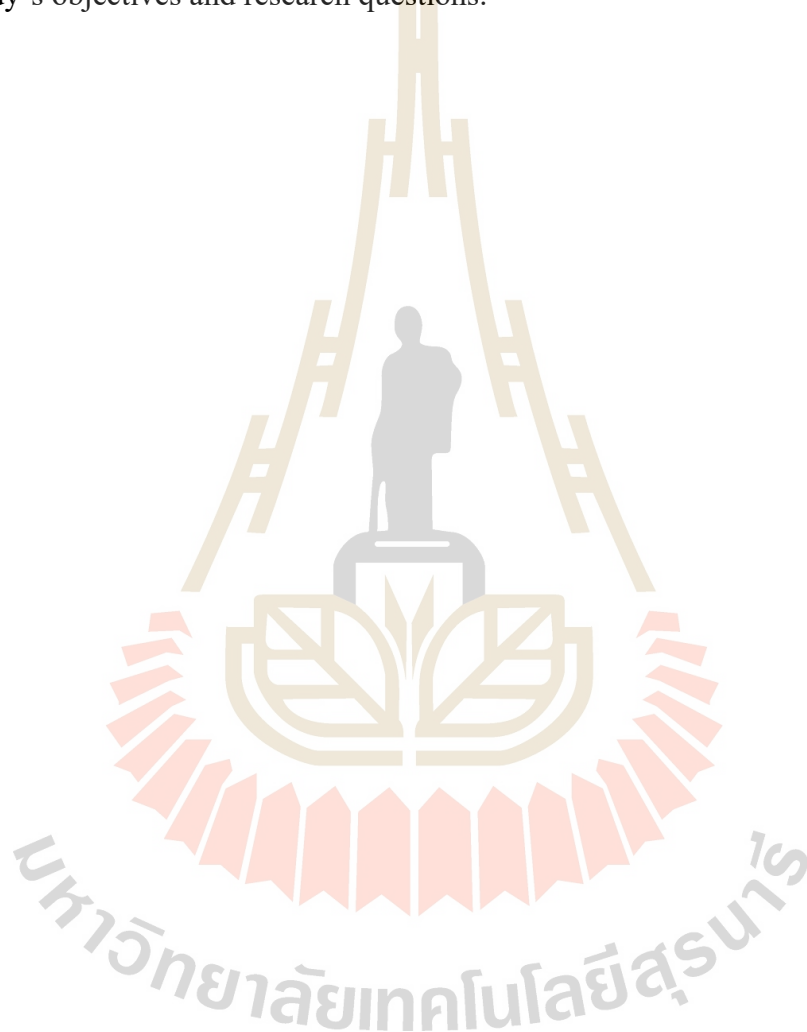
Validating data has to be applied in all steps to decrease biases, increase the validity of the findings, this can be established through triangulation of data sources (Joslin & Müller, 2016; Walker et al., 2023), e.g. while conducting the documentary analysis process, various reliable sources of data were navigated (as presented in Table 3.2) along with cross-checking of data consistency. For example, documents related to the Espoo Convention, TEIA, transboundary impact, and IA systems from multiple perspectives (i.e., applying the TEIA in different contexts of the ratified countries). The

“GoodNotes” application was used to repeatedly review the data and ensure its coherence and consistency. Additionally, a “PivotTable” was created in Microsoft Excel to compile data from selected experiences, allowing for a double check of coherence and consistency.

3.8 Summary

In order to investigate how the concept of the Espoo Convention can be applied in practice among the ASEAN countries, learning from the experiences of the implementation is essential. This study applied a qualitative research methodology, utilizing documentary analysis divided into two contexts: (1) the implementation of the Espoo Convention in both UNECE and non-UNECE member states, examining key issues, solutions, challenges, and factors influencing the effectiveness of TEIA (through 16 cases from questionnaire reports and 6 cases from committee reports); and (2) the ASEAN context in dealing with transboundary impact issues, specifically focusing on Thailand's border with Lao PDR (through relevant literature and 3 selected experiences), to investigate the limited application of TEIA. All relevant documentation in each context was reviewed for data coding using a hybrid approach that combined deductive and inductive methods, ensuring the integration of both existing and new insights. Coded data were then analysed through thematic analysis using NVivo 14 software to identify experiences, challenges, and limitations in ratified countries. The Espoo Convention context provided a framework for the effective implementation of TEIA, and all codes established within this context were used as a set of a priori codes to analyze the Thai context. Then, the findings were then analysed using a gap analysis framework, which compares TEIA practices between the Espoo Convention and

ASEAN countries—especially Thailand—to assess and forecast key aspects learned from the implementation of the Espoo Convention for TEIA in Thailand. By comparing the desired outcomes of the Espoo Convention with the current situation in ASEAN member states, this analysis provided key findings and recommendations aligned with the study’s objectives and research questions.

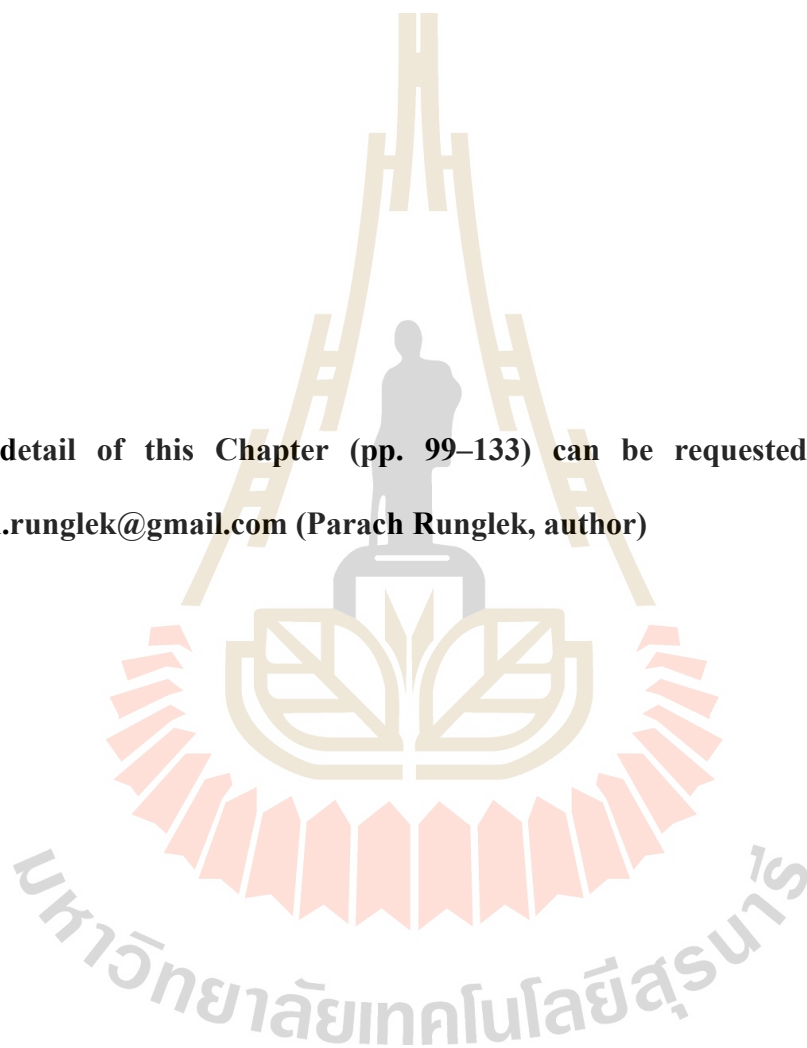


CHAPTER 4

RESULTS AND DISCUSSION: Implementation experiences of Espoo Convention in Ratified Countries

This chapter presents the findings responding to the first **research question in this study**, i.e. “how the Espoo Convention has been applied and implemented in the parties ratified to the Convention regarding challenges, lessons learned, and the key elements influencing the achievement of transboundary impact assessment under the Convention”. The TEIA implementation under the Espoo Convention in both UNECE and non-UNECE member states have been investigated mainly based on documentary analysis approach. The findings were derived from selected cases with the implementation experiences through 2 sets of data: (1) the 16 cases of questionnaire reports responded by ratified countries, and (2) the 6 cases of the implementation committee report (as outlined in **Chapter 3, Table 3.3, Table 3.4**).

More detail of this Chapter (pp. 99–133) can be requested via email at Parach.runglek@gmail.com (Parach Runglek, author)



Summary of the Chapter

Chapter 4 examines the implementation of the Espoo Convention across ratified countries, highlighting key factors influencing transboundary environmental impact assessment (TEIA), along with challenges and lessons learned. The analysis is based on documentary analysis, including 16 selected experiences from questionnaire reports and 6 selected experiences from Implementation Committee reports. A hybrid coding approach was applied for data coding, followed by grouping similar codes into broader themes or patterns using NVivo 14 software to identify key aspects, challenges, and insights into the practical application of the Convention. According to the selected experiences, each neighboring country may have different approaches to taking action, as each follows its national EIA legislation. This results in several challenges in TEIA implementation, including:

- **Inconsistency in definitions:** Different perspectives on significant impacts lead to varying views on determining a list of activities that may have a likely significant adverse transboundary impact.
- **Lack of clarity in identifying Affected Parties:** Approaches to identifying affected parties vary, making it difficult to ensure equivalent opportunities between the Parties.
- **Variation in timeframes under the TEIA procedure:** Differences in procedural timeframes often cause delays and hinder effective decision-making.
- **Language and translation issues:** The Espoo Convention does not regulate translation requirements or criteria, which can lead to misunderstandings, affecting the transparency and efficiency of the TEIA process.

Furthermore, the TEIA procedure under the Espoo Convention is implemented differently across countries, all of which are linked to the challenges, as previously stated. Whether differences in perspective between the Party of Origin (PO) and the Affected Party (AP) on the screening process, lack of clear deadlines leading to further complications in the notification and confirmation to participate steps, as well as time constraints and language barriers that persist in consultations between parties and the public participation process. To address these challenges, early consultations, consultations between parties, and bilateral or multilateral agreements can be considered key issues to enhance TEIA implementation. These measures are crucial for influencing the achievement of the TEIA procedure under the Espoo Convention in both UNECE and non-UNECE member states. Obviously, these key issues all processes grounded in international cooperation. Therefore, transparency and mutual trust are crucial to cooperation between the parties with different context. Emphasizing the importance of such cooperation is thus regarded as an approach that fosters to achieve shared objectives, both for the Party of Origin and the Affected Party.

CHAPTER 5

RESULTS AND DISCUSSION: Transboundary environmental impact issues in the context of ASEAN (focusing on Thailand bordering to Lao PDR)

This chapter presents the findings responding to research question no.2, i.e. "In the ASEAN context, what are the lessons learned from experiences in dealing with transboundary impacts?". As mentioned in Chapter 3, this study sheds light on transboundary impact issues focusing on cases related to the context of Thai-Lao PDR border, as an example of the ASEAN setting. To explore such issues, documentary analysis was conducted through investigating relevant literature, e.g. relevant ASEAN experience documents on transboundary impact issues, including relevant agreements (see **Chapter 3, Table 3.2 and Table 3.5**). Additionally, while it is considered that the practices of transboundary impact assessment in these regions are considered limited, relevant implementation experiences were investigated through selected EIAs and research cases, as listed in **Table 3.5 and Table 3.6**. Deductive codes were initiated based on the research question, and established issues from the findings in **Chapter 4**. The results were derived into themes as presented in **Table 4.1**, which can be considered as an established framework for investigating the experiences in the ASEAN context. Additional issues were also gained from inductive coding through the documentary analysis based on various sources of data. As such, the set of such issues

and justification are delivered in this chapter, which conveys the findings regarding how transboundary impact issues in the ASEAN context has been handled, and key issues influencing the achievement of TEIA application in the ASEAN context.

5.1 Current agreements related to transboundary impact issues in ASEAN

ASEAN has been encountering various environmental challenges, namely rising average and extreme temperatures, increased rainfall during the wet season, heightened rainfall intensity and duration, and more frequent extreme events like floods, droughts, and forest or land fires (ASEAN, 2024; Howes & Wyrwoll, 2012). Transboundary haze remains a significant issue, as does the challenge of water resource management in the Mekong River area. To address these environmental concerns, it seems that ASEAN has attempted to foster closer cooperation among its member countries. This includes the establishment of an **ASEAN agreement on transboundary haze pollution and an agreement on the cooperation for the sustainable development of the Mekong River basin.**

5.1.1 ASEAN agreement on transboundary haze pollution (AATHP)

The severity of transboundary haze in the past has been a major factor (Kumtrai, 2018; Qadri, 2001) leading ASEAN countries to seek cooperation through a multilateral agreement as a tool to address transboundary haze. With the cooperation of ASEAN member countries, it led to the establishment of the ASEAN Agreement on Transboundary Haze Pollution (AATHP) with the objective of preventing, monitoring, and mitigating land and forest fires to control transboundary haze pollution through

concerted national efforts and regional and international cooperation in the context of sustainable development. However, according to the annual hotspot data collected by the ASEAN Specialized Meteorological Center (ASMC) over the past 10 years (2014-2024), hotspots are still detected, with their number and location varying each year. In 2023, Lao PDR reported a maximum of 65,563 hotspots, averaging 180 hotspots per day. This highlights that transboundary haze remains a recurring problem, and the AATHP has yet to address or resolve it effectively to meet its objectives (Charusombat, 2023; Ghani et al., 2017; Purwendah & Mangku, 2018).

In implementing the AATHP, it was criticized that the cooperation has been likely to be often hindered by the “ASEAN way,” emphasizing the non-interference actions (Charusombat, 2023). Although Articles 12(1) and (2), identify that a party experiencing land or forest fires, or haze pollution can request assistance from other parties, e.g. the ASEAN Centre, or international organizations; such assistance requires the consent of the requesting party or, the receiving party, which may not happen easily in the ASEAN context. This is consistent with the findings of Ghani et al. (2017) and Charusombat (2023), who state that the "ASEAN way" is a weakness in the implementation of AATHP. In addition, the agreement has other shortcomings, such as diverse official languages and unclear definitions, which lead to differences in interpretation and various responses (Jones, 2006).

In addition, it was addressed that penalties or legitimate sanctions for non-compliance countries are obligatorily lacking, despite the intensity of the haze or hotspot increase (Tan, 2005). It was suggested that while the agreement can be considered one of the instruments for addressing transboundary haze in the ASEAN context (Purwendah & Mangku, 2018), it remains unsuccessful (Ghani et al., 2017).

Therefore, to make AATHP implementation more effective, it is important to establish policy coordination in the areas of economic policy and criminal justice (Jones, 2006) and to establish a working group to support the implementation of the AATHP. This includes fostering good cooperation among the parties (Charusombat, 2023) as a means to address transboundary environmental issues in the region (Ghani et al., 2017).

5.1.2 Agreement on the cooperation for the sustainable development of the Mekong River basin

It was expected that the establishment of the Mekong Agreement could enhance member countries' awareness on their roles, duties, and responsibilities. Additionally, the Agreement includes specification of indicator framework for managing water and resource used in the Mekong River Basin, which can be applied to support the implementation of the TbEIA, e.g. addressing transboundary impact issues within the basin. However, non-interference, or the ASEAN Way, was observed as an issue that could impede the success of the TbEIA process under the Mekong Agreement. This issue is similar to the AATHP (Charusombat, 2023; Ghani et al., 2017) and aligns with Mekong River Commission (2023), which identifies that

"The decision-making authority of a Member Country to approve the development of a project on its territory, which is subject to a TbEIA, is respected. In practical terms, this means that the TbEIA process follows the national EIA legislation of the Member Country where the proposed project is located." (Mekong River Commission, 2023, p. 10)

For effective implementation of the agreement, it is crucial to ensure transboundary cooperation between responsible authorities. According to Mekong River Commission (2023), this cooperation should allow the practice of meaningful participation of all concerned Member Countries in TbEIA procedure, without prior harmonization of their legislation and procedures to be fully and mutually compatible. This involves facilitating data exchange and agreeing on conditions for access by experts commissioned by the proponent (developer, operator) to the potentially affected territory, including transboundary or early consultations, which is a good approach for enhancing mutual understanding among member countries under the TbEIA implementation under the Mekong Agreement (Saisoonthorn, 2016; Yu & Chen, 2022), the absence of clear criteria for identifying potentially AP, or differences in timeframes in each process. If these issues are not resolved, it may lead to conflicts, as different parties could have varying interpretations and responses in dealing with the transboundary issue.

Table 5.1 Comparative issues in the Espoo Convention implementation experiences and ASEAN experiences and existing solutions

Issues as found in Espoo implementation experiences	Issue found in ASEAN experiences	Existing solution recommended found in reviewed cases
<p>Inconsistency of definition Definition of key term e.g. transboundary impacts Defining list of activities</p>	<p>1) The definition of “transboundary impact” has not yet been clearly defined consistently. : The AATHP defines "transboundary haze pollution" (ASEAN, 2002) : The Mekong Agreement has not yet defined "transboundary impact" (Mekong River Commission, 1995) : The TbEIA guideline defines transboundary environmental impact as "<i>Significant environmental impacts/changes originating within the territory of one Member Country that potentially affect other Member Countries</i>" (Mekong River Commission, 2023, p. 42)</p> <p>2) The list of activities varies depending on the objectives of each agreement : The AATHP focuses on activities that related to "land and forest fires" (i.e., coal seam fires, peat fires, and plantation fires) (ASEAN, 2002) : The Mekong agreement focuses on activities in the Mekong River Basin include hydropower plant, irrigation schemes, ports, river works, navigation projects, industrial and mining projects, and aquaculture projects (Mekong River Commission, 1995, 2023)</p>	<ul style="list-style-type: none"> • Early consultations can support member countries by facilitating discussions on transboundary impacts and coordinating practical arrangements for addressing transboundary impacts in the EIA (Mekong River Commission, 2023) • Advocating for the ASEAN Framework Agreement on EIA, as this framework would establish key principles and mechanisms for EIA in ASEAN, including TEIA, SEA, and the integration of climate change into EIA (ESCAP, 2022)
<p>Lack of Clarity to identify Affected Parties Identification of potential AP Ensuring equivalent opportunity between the Party</p>	<p>Under the agreement in the ASEAN context, there are no clear criteria for identifying the AP (ASEAN, 2002; Mekong River Commission, 1995)</p>	
<p>Differences in timeframe determination</p>	<p>Timeframe varies in each step of the TbEIA procedure, while it has not been explicitly defined, as the parties can agree on it through early consultation (Mekong River Commission, 2023)</p>	
<p>Language and translation</p>	<p>The language used for the EIA report should be agreed upon during the early consultation, but it is typically English (Mekong River Commission, 2023)</p>	<ul style="list-style-type: none"> • A format for the response to the TbEIA initiation letter has been established, allowing parties to specify the required language of the documents (Mekong River Commission, 2023, p. 64) • Advocating for the ASEAN Framework Agreement on EIA, as this framework would establish key principles and mechanisms for EIA in ASEAN, including TEIA, SEA, and the integration of climate change into EIA (ESCAP, 2022)

5.2 The Thai context in dealing with transboundary impact issues (focusing on northern Thailand bordering to Lao PDR)

According to the Enhancement and Conservation of National Environmental Quality Act (No.2) B.E. 2561 (2018), which amends requirements related to EIA in alignment with the Constitution, it has been noted that transboundary impacts are not clearly specified (Swangjang, 2018). Consequently, approaches to addressing transboundary impacts vary depending on the specific context.

5.2.1 Experiences in dealing with transboundary impact in Thailand (focusing on northern Thailand bordering to Lao PDR)

Expanding on the analysis of both agreements, it is apparent that while ASEAN has established frameworks to address transboundary environmental issues, challenges remain in their practical implementation. Key challenges, including non-interference principles, lack of enforcement mechanisms, and differences in national legislation, continue to hinder effective regional cooperation. In addition to reviewing relevant literature on experiences with ASEAN transboundary impacts, the findings established from the three selected experiences (as shown in **Table 5.2**) highlight that challenges persist related to defining key terms and identifying potential Affected Parties (AP).

Table 5.2 Findings established from investigating the selected cases in ASEAN context

Issue	Description	Case no. 1	Case no. 2	Case no. 3	No. of sources mentioning the issue	References mentioning the issue	
1	Dealing with transboundary impact	When the proposed project (under App.1or App.3 of the Convention) is likely to have a transboundary impact, how do they deal with the impact					
1.1	Defining key terms	Transboundary impact has been defined	×	×	×	0	0
1.2	Providing list of activities	List of activity relevant to Appendix I of the Convention has been applied into ASEAN setting	×	×	×	0	0
1.3	Significant impact	Activities related to general criteria under App.3 of the Convention has been applied into ASEAN setting	×	×	×	0	0
1.4	Transboundary impact	How do they define the relevant term in a transboundary context (impact, transboundary impact, significance, major change, etc.)?	×	×	×	0	0
1.5	Concern related to transboundary impact	Concern related to transboundary impact can define the relevant term in a transboundary context	✓	✓	✓	3	9
2	Identifying the Affected Party	The extent to which the countries in ASEAN context having identified the public “of the affected Party in the areas likely to be affected”? – if considering the similar concept as suggested in the Espoo Convention					
			×	✓	×	1	1
3	Limitation of EIA legislation	Limitations in EIA legislation that influence the consideration of the transboundary context					
			×	✓	✓	2	4

Remark¹: Yes: ✓, No: ×

Remark²: **Case no.1** = EIA report on 500 Kv electricity transmission system project for the Hongsa Lignite Power Plant Project (Nan to Mae Moh); **Case no.2** = Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on Mekong Mainstream in 2022; **Case no.3**=The Development of Community-led Health Impact Monitoring, Nan Province Thailand: A Case of transboundary Pollution from Hongsa Power Plant, Lao PDR

Remark³: No. of sources mentioning the issue = The number of files where a particular code appears, References mentioning the issue = The number of times a particular code has been applied within those files

Experiences in implementing TEIA in ASEAN context remain limited (Plengsaeng et al., 2014; Subekti, 2020; Zhao et al., 2021). As shown in **Table 5.3**, experiences with the EIA process in the selected cases indicate that actions have been taken to some extent based on national EIA procedures linked to the transboundary context. Public participation is widely emphasized, appearing in two cases; however, its scope remains limited to the public within their own territory. Meanwhile, experiences with notification, consultation, and final decision-making vary, reflecting different approaches to addressing transboundary impacts. These differences may result from the absence of specific legislation on transboundary impacts and the lack of a clear framework to guide implementation (Jarusombat, 2019; Saisoonthorn, 2016).

Table 5.3 Issues arising from experiences under the selected cases investigated in (T)EIA practice

Issue	Description	Case no. 1	Case no. 2	Case no. 3	No. of sources mentioning the issue	References mentioning the issue
1 Experience on notification	How are they carried out to inform relevant information on the proposed activities to each party or their public. And related to PNPCA	✓	✗	✓	2	3
2 Experience on consultation	To focus on their experience with transboundary consultation between concerned Parties or relevant authority. And related to PNPCA	✗	✓	✓	2	3
3 Experience on final decision	To focus on their experience with the final decision on the proposed activity in transboundary context	✓	✗	✗	1	4
4 Experience on PNPCA	Related to experience on PNPCA. the PNPCA as a main tool to provide steps and to promote better understanding and cooperation among MRC member countries. PNPCA consists of three different main procedures: notification, prior consultation, and specific agreement.	✗	✓	✗	1	5

Issue	Description	Case no. 1	Case no. 2	Case no. 3	No. of sources mentioning the issue	References mentioning the issue
5 Experience on post-project analysis	A post-project analysis (including monitoring and surveillance) of the activity shall be carried out, considering the likely significant adverse transboundary impact of the activity for which an EIA has been undertaken pursuant to the Convention. Thus, in Thailand context, focused on post project monitoring.	✓	✓	✓	3	20
5 Citizen science 1	Related to experience on post-project monitoring	✗	✗	✓	1	4
5 Monitoring measures 2	Related to experience on post-project monitoring	✗	✓	✗	1	3
6 Experience on public participation	In practice, how does public participation operate? They provided equivalent opportunities and rights in the same way between community, project proponent, relevant authorities, and neighboring countries, or not?	✓	✓	✗	2	15

Remark¹: Yes: ✓, No: ✗

Remark²: No. of sources mentioning the issue = The number of files where a particular code appears, References mentioning the issue = The number of times a particular code has been applied within those files

Additionally, these selected experiences highlight the availability of steps or platforms in the EIA procedure that can be linked to the TEIA procedure under the Convention. The findings suggested that in Including issues arising from experiences in dealing with transboundary impacts within the Thai context, which can be summarized in **Table 5.4**, with the details as follows:

Table 5.4 Summary of findings and key issues arising from Thailand's experiences related to the selected cases (derived based on inductive coding)

Findings	Consequences	Key issues	Solution
1) Lack of transboundary impact	<ul style="list-style-type: none"> The EIA report does not address transboundary issues, despite the project's proximity to Lao PDR. Thailand lacks specific laws or frameworks for transboundary assessments. 	Legislative framework and instruments required	Drive towards the amendments on <ul style="list-style-type: none"> provisions regarding the consideration of transboundary issues existing environmental criteria related to transboundary issues
2) Limitation in EIA legislation	<ul style="list-style-type: none"> Differences of EIA legislation between Thailand and Lao PDR may create concerns for affected communities. Mitigation measures under Lao PDR's legislation may not adequately address the impacts. 	International cooperation required	Advocating for the establishment of international cooperation mechanisms to deal with differences in EIA legislation <ul style="list-style-type: none"> enhance understanding of relevant EIA legislation strengthen cooperation in finding solutions for managing shared impacts
3) Database websites related to transboundary context has been developed	<ul style="list-style-type: none"> Facilitates networking and information sharing among policymakers and practitioners. Supports the assessment of trends and risks in areas expected to be affected by the project. Raises awareness of environmental impacts, reports incidents, and advocates for governmental responses. 	Communication and Awareness should be enhanced	Developing a database system as a tool for effective decision-making <ul style="list-style-type: none"> enhance website content to be more flexible in presentation while ensuring accurate and up-to-date information improve the information to be easily understandable for readers, facilitating communication and promoting engagement

Remark: Findings derived based on 1) Kasetsart University (2009), 2) Somporn et al. (2023), and 3) Mahasarakham University (2023); Somporn et al. (2023)

(1) Lack of consider transboundary impact

Referring to Case No. 1 of the selected experiences (Kasetsart University, 2009), Within the details of the EIA report, it provides an analysis and assessment of environmental impacts using a four-tier system: physical resources, ecological resources, human use values, and quality of life. Although the project is located on the Thai border and connected to Lao PDR via electric power transmission lines, the report does not address transboundary issues or adopt a transboundary approach.

From another perspective, this project would fall under the category of activities requiring a transboundary impact assessment according to the Espoo Convention in the UNECE context. It is evident that the EIA conducted under Thai legislation may not fully address the potential impacts, particularly those related to transboundary concerns. In Thailand, there is currently no clear legislation addressing transboundary issues or outlining a framework for conducting such assessments. As a result, the EIA process does not extend to cover potential transboundary impacts on their own country and neighboring countries. In countries without specific laws or criteria for assessing transboundary impacts, such as Thailand, particularly for development projects near borders, focusing on existing environmental conditions becomes crucial in predicting or identifying potential transboundary impacts.

(2) Limitation in EIA legislation

EIA legislation typically varies across countries, depending on each nation's specific perspectives and context. In the case of Thailand and Lao PDR,

the EIA procedures differ in several aspects, including legislative details, project types and sizes that require assessment, the components of the EIA reports, the public participation process, timeframes, and sustainable approaches. According to Case No. 3 of the selected experiences, a key limitation emerges when a power plant is located on the border of Lao PDR.

While the social and environmental impact assessments are conducted in accordance with Lao PDR's legislation, the assessment and prediction of impacts do not extend to areas across the border in Thailand. This may raise concerns for people living near the impact area regarding their crops and health (Somporn et al., 2023). Although Lao PDR has implemented mitigation measures, these measures primarily focus on their own territory. Consequently, mitigation efforts on one side may not adequately address the concerns of affected parties in neighboring region.

(3) Develop database websites related to transboundary context

In the context of Thailand, according to the cases focused in this study, a science-based database system for monitoring and assessing transboundary impacts has been developed to facilitate public access to information (Mahasarakham University, 2023; Mekong River Commission, 2001; Plengsaeng et al., 2014). These systems enhance transparency and promote public awareness, serving as an important process for building mutual trust and driving policy development. This aligns with the study by Uitto and Duda (2002), which suggests that developing a science-based diagnostic analysis in collaboration with relevant agencies is essential for the sustainable management

of transboundary resources, potentially leading to institutional, policy, and legal reforms in the nations involved. Based on selected experiences, accessing to database websites related to transboundary issues, (as summarized in **Table 5.5**) as follows:

Table 5.5 Overview of current database website related to transboundary in ASEAN context (focusing on Thailand)

Issues	The website (URL)	Objectives
Water resource	Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on Mekong Mainstream (https://tnmcstudy.onwr.go.th)	To monitor changes in water resources, environmental conditions, and societal impacts along the Mekong River
	The Mekong River situation (https://www.tnmc-is.org)	To presents real-time data on the overall water situation at each monitoring station
Haze pollution	ASEAN Haze Portal (https://hazeportal.asean.org)	To share their updates, stories, best practices, reports, and knowledge products
	Fine-Resolution Forecast Products of Fire Danger Rating (http://www2.dnp.go.th/gis/fdrs/fdrs.php)	To show information about Fine-Resolution Forecast Products of Fire Danger Rating both in Thailand and neighbouring countries
Self-monitoring and citizen scientists	C-site (https://www.csitereport.com/)	To enable communication and information exchange among the public, scientific experts, and authorities

I. Accessing database websites related to water resources under the Mekong Agreement in Thai context

According to Case No. 2 of the selected experiences (Mahasarakham University, 2023), the Office of the National Water Resources (ONWR) has developed a website to monitor changes in water resources, environmental conditions, and societal impacts along the Mekong River. The website, accessible at <https://tnmcstudy.onwr.go.th> (**Figure 5.1**), supports the assessment of trends and risks across in areas expected to be affected by the

project (eight provinces along the Mekong River) and encourages public participation in shaping agreements or measures for the sustainable use of the river (Mahasarakham University, 2023). It provides detailed data on the Mekong River, including project information, physical, biological, and socio-economic data, geographic reports, and public forum insights, covering key issues such as flow dynamics, water quality, fisheries, and socio-economic impacts. In addition, the Thai National Mekong Committee-Information System (TNMC-IS) has developed a database system to present the Mekong River's situation through the website <https://www.tnmc-is.org>. The website presents real-time data on the overall water situation at each monitoring station, including information from the monitoring system, geographic information system (GIS), decision support system, MRC regulations, and dam-related data.



Figure 5.1 The database website serves as a crucial tool for disseminating the project's findings (Office of the National Water Resources, 2024)

II. Accessing database websites related to haze pollution under the AATHP in Thai context

ASEAN has developed the ASEAN Haze Portal platform (accessible at <https://hazeportal.asean.org>) (**Figure 5.2**), which provides information through a knowledge management platform for sustainable peatland and haze management in Southeast Asia by sharing updates, best practices, and reports. It facilitates networking and information sharing among policymakers and practitioners (ASEAN, 2024). In Thailand, the Forest Protection and Fire Control Office, Department of National Parks, Wildlife and Plant Conservation has developed a website that shows information about Fine-Resolution Forecast Products of Fire Danger Rating, accessible at <http://www2.dnp.go.th/gis/fdrs/fdrs.php> (**Figure 5.3**), with information on both fine fuel moisture code (FFMC) and fire weather index (FWI). In the part of upper northern Thailand, upper Southeast Asia, and including neighboring countries such as Lao PDR, Cambodia, and Myanmar. These resources represent a good approach developed for the Thai public, providing concerned citizens with easy access to crucial information. Additionally, it reflects Thailand's experience in dealing with transboundary impacts, including demonstrating the development or extension of existing information to create a user-friendly and accessible database that enhances public understanding and engagement with transboundary environmental issues.

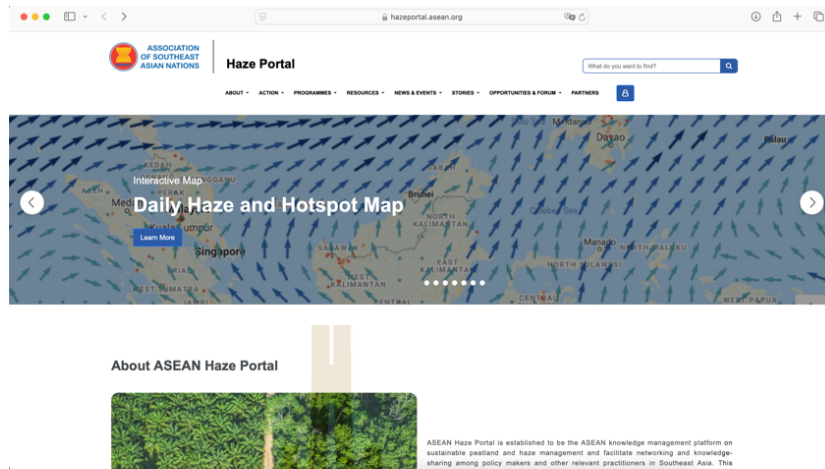


Figure 5.2 The ASEAN Haze Portal platform (ASEAN, 2024)

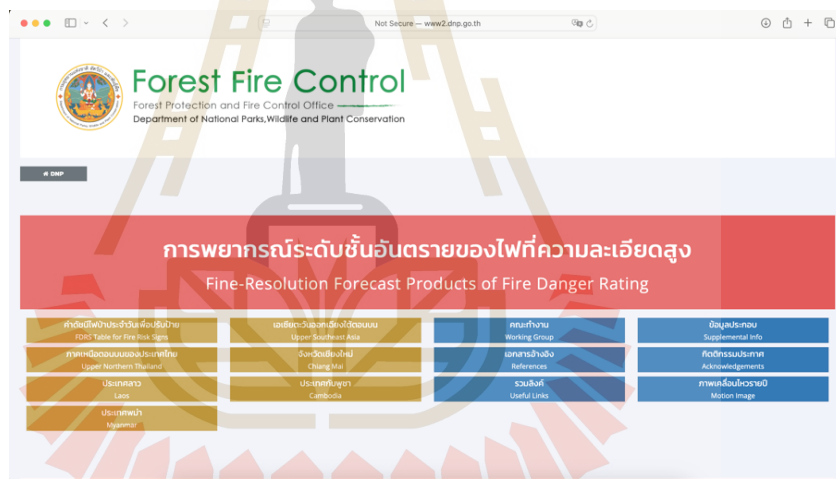


Figure 5.3 Fine-Resolution Forecast Products of Fire Danger Rating platform (The Forest Protection and Fire Control Office, 2025)

III. Accessing database websites related to self-monitoring in Thai context

In addition, according to Case No. 3 as a research programme (Somporn et al., 2023), the development of the C-site platform (<https://www.csitereport.com/>) (Figure 5.4) was established, which facilitates data collection from citizen scientists in the area of Thai-Lao PDR border of Nan province. This platform is an important tool for raising awareness of environmental impacts, reporting incidents, and calling for governmental responses. It enables communication and information exchange through collaboration among the public, scientific experts, and authorities responsible for environmental impacts. Additionally, the database functions to collect data that contributes to big data with sufficient quantity and scientific reliability in order to promote it as an important mechanism for future policy development. However, Chanchitpricha et al. (2024) found that user feedback indicated the platform's operations remain limited and require further development to enhance data input processes and increase user engagement, ensuring that the self-monitoring process can occur sustainably.

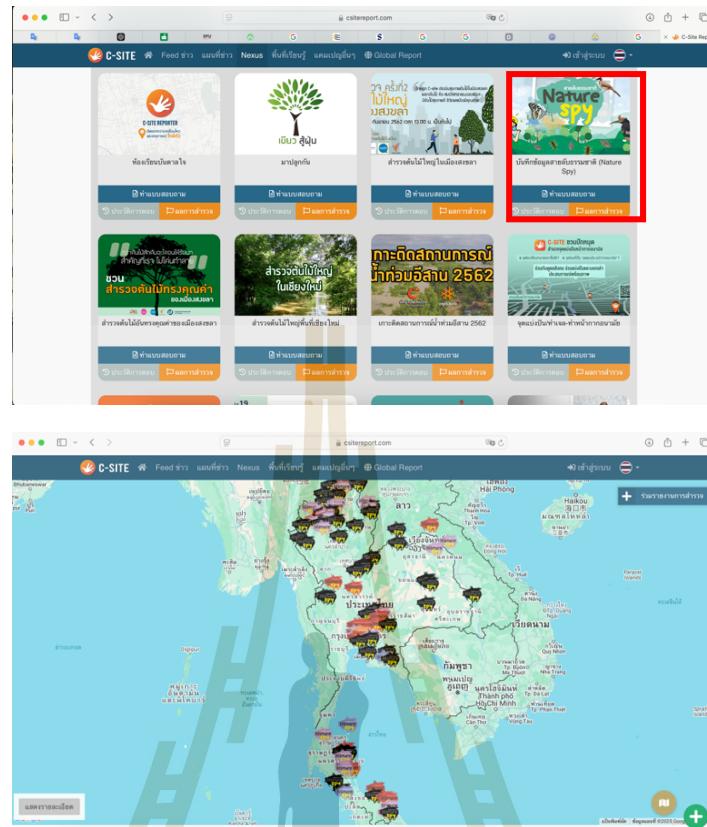


Figure 5.4 A tool for promoting a self-monitoring platform
(C-site report platform, 2025)

In the context of Thailand, although there is still no clear legislation addressing transboundary issues, the Department of Water Resources, under the Ministry of Natural Resources and Environment, has gained experience in dealing with transboundary impacts from 2014 to 2023 through *the Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on the Mekong Mainstream* (Mahasarakham University, 2023). This study is under the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, or the Mekong Agreement, which is a tool to help promote and coordinate the management and development of water resources for mutual benefit. Aims to monitor

and examine the transboundary environmental impacts of hydropower projects on the Mekong Mainstream, covering a range of critical issues, including flow dynamics, water levels, sediment accumulation, riverbank erosion, water quality, fisheries, riverbank agriculture, socio-economic factors, and ecosystem services. According to the Case No.2 of selected experience or 2022 Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on the Mekong Mainstream, there is no available information on the management of dams in the tributaries of Lao PDR (Mahasarakham University, 2023). This gap may lead to insufficient data for analyzing common causes of potential changes and incomplete projections of transboundary impacts.

5.3 Key issues influencing the achievement of transboundary environmental impact assessments in ASEAN context

Although Thailand is a member of ASEAN and has signed both the ASEAN Agreement on Transboundary Haze Pollution (AATHP) and the Agreement on the cooperation for the sustainable development of the Mekong River basin (Mekong Agreement), both are still not comprehensive tools for dealing with transboundary impacts. This limitation arises from the fact that ASEAN members have to follow the "ASEAN way" or the principle of non-interference, an approach that may hinder the effective implementation of both the AATHP and the Mekong Agreement (Charusombat, 2023; Ghani et al., 2017; Panbautoom, 2024). Nevertheless, according to the three selected experiences in the Thai-Lao PDR context, as presented in **Table 5.6**, it emphasizes the importance of international cooperation, which is one of the

fundamental key issues related to the effectiveness of TEIA in supporting the successful implementation of the Espoo Convention's objectives.

Table 5.6 Key issues related to the Espoo Convention having been considered in the selected 3 cases in the Thai-Lao PDR context

Issue	Description	Case no. 1	Case no. 2	Case no. 3	No. of sources mentioning the issue	References mentioning the issue
1	International cooperation This issues related to international organisation, and cooperation (Stockholm Declaration) included in the national plan or international agreement or in practice between the Parties.	✓	✓	✓	3	19
2	International measures This issues related to international measures (Stockholm Declaration) included in the national plan or international agreement or in practice between the Parties.	✗	✓	✓	2	6
3	Sustainable development goal This issues related to SDG included in the national plan or international agreement.	✗	✓	✓	2	2

Remark¹: Yes: ✓, No: ✗

Remark²: No. of sources mentioning the issue = The number of files where a particular code appears, References mentioning the issue = The number of times a particular code has been applied within those files

Similarly, international cooperation is also one of the key issues influencing the achievement of TEIA in the ASEAN context (**Table 5.7**). Based on a literature review of the experiences in ASEAN transboundary impacts, along with the three selected experiences, it was found that other key issues influencing the achievement of TEIA in the ASEAN are summarized in **Table 5.7**.

Table 5.7 Key issues influencing the achievement of TEIA based on selected experiences

Key issues	Details
1 Legislative framework and instruments	Advocating for amendments or additional provisions regarding the consideration of transboundary issues.
2 Communication and Awareness	Enhancing the capacity of people and relevant authorities to adapt to changes in natural resources and the environment through the application of scientific research and tools.
3 International cooperation	Advocating for the establishment of international cooperation mechanisms and identifying strategies to the most feasible approach to deal with transboundary impacts under the ASEAN way.

Therefore, these key issues serve as mechanisms that support the development and enhancement of policies or laws related to transboundary issues, making them clearer and more comprehensive in addressing environmental issues across a broader range of dimensions. The details are as follows:

(1) Legislative framework and instruments

The EIA process in Thailand is conducted in accordance with the Enhancement and Conservation of National Environmental Quality Act, which includes clear implementation guidelines. The governing body for this process is the Office of Natural Resources and Environmental Policy and Planning (ONEP), which is responsible for ensuring compliance with national environmental laws and relevant regulations. According to the latest Constitution (2017), the Enhancement and Conservation of National Environmental Quality Act (No. 2) B.E. 2018, and (Swangjang, 2018), it is

evident that issues related to sustainable implementation—specifically, transboundary issues and cumulative impact issues—have not been clearly defined. Moreover, Jarusombat (2019) states that the strength of Thailand's legal framework lies in the existence of surrounding laws that can be applied to address various issues, but a significant weakness is the lack of specific legislation to deal with transboundary impact issues, as well as the absence of legal integration with neighboring countries or member states under the signed agreements. Although the issue of transboundary impact is not clearly defined in the law, Case No. 2 from the selected experiences demonstrates awareness of transboundary impacts through a monitoring and impact assessment report concerning hydropower projects on the Mekong mainstream by the Office of the National Water Resources, aligning with the objectives of the Mekong Agreement. This suggests that the Mekong Agreement is likely to serve as a model for developing legislative instruments aimed at creating tools for conducting transboundary environmental impact assessments (TEIA) in the Thai context. The Mekong Agreement has adapted the TEIA framework to suit the specific contexts of its member countries. Furthermore, the Mekong River Commission (MRC) incorporates the Espoo Convention as one of the models for developing the TbEIA guidelines (Mekong River Commission, 2023). These guidelines are designed to support the National Mekong Committees (NMCs) in conducting TEIA within the context of the Mekong River.

Therefore, there is a need to advocate for amending the Act to include considerations of transboundary issues, to develop existing environmental criteria, or to establish specific obligations related to transboundary impacts.

Such amendments would enhance the ability to foresee and assess potential transboundary impacts that may arise from project types likely to have such effects, particularly in border areas (Dávila et al., 2020; Somporn et al., 2023; Swangjang, 2018). Integrating transboundary issues as a key component in the development of legislative instruments also provides an opportunity to establish a legislative framework by applying the provisions of the two agreements to which Thailand is a party. This includes using these provisions to enhance domestic law, with references from the TEIA under the Espoo Convention, which is recognized as one of the most comprehensive and advanced tools for addressing transboundary issues (Koyano, 2008; Okowa, 2000).

(2) Communication and Awareness

Effective communication plays a pivotal role in conveying objectives and disseminating relevant information to stakeholders. It is a key approach to enhancing the capacity of individuals and relevant authorities to adapt to changes in natural resources and the environment, through the application of scientific research and tools. This includes the development of a database system that serves as an intermediary for providing accessible, verifiable, and transparent information, ultimately fostering awareness among the public, relevant departments, and interested parties.

However, in the context of Thailand, despite the availability and easy access to the database, legislative gaps remain a persistent issue. These gaps arise from the absence of a clear legislative framework and instruments. For instance, there is no explicit definition of the responsible authorities, their roles,

duties, or specific guidelines for assessing transboundary impacts. Consequently, the available data does not fully address all environmental dimensions. Therefore, the development of an environmental quality monitoring system that encompasses all environmental dimensions, including the transboundary context, is essential for enabling citizens, relevant authorities, and stakeholders to access information. This system would help raise awareness of potential impacts and facilitate the identification of effective strategies for managing and dealing with these impacts, both as Party or Origin (PO) and as Affected Party (AP).

(3) **International cooperation**

The issue of transboundary impacts is a persistent challenge that cannot be addressed by any single country alone. It requires international cooperation to achieve common goals peacefully and effectively, without resorting to conflict. As can be seen from the year 2023, the Prime Minister of Thailand, hosted a videoconference trilateral consultation on transboundary haze pollution with Prime Minister of the Lao PDR and Prime Minister of Myanmar. the Prime Minister of Thailand proposed the CLEAR Sky Strategy to exchange experiences, solve the problem of haze pollution, and to find common approaches between the three countries through the preparation of a Joint plan of action (Ministry of Foreign Affairs, 2023). The elements of the CLEAR Sky Strategy as shown in **Figure 5.5**.

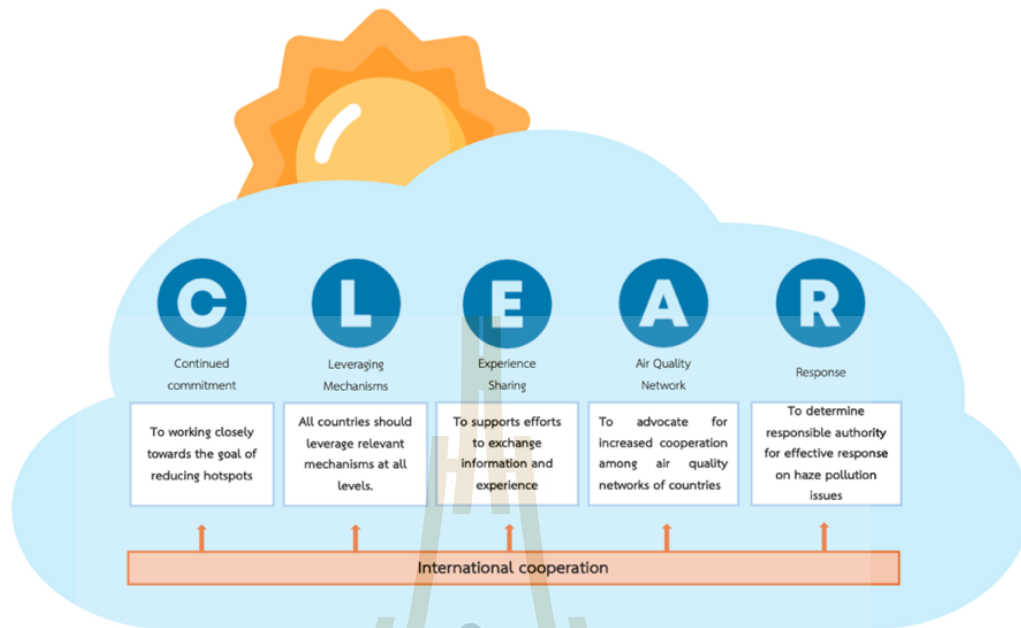


Figure 5.5 The elements of the CLEAR Sky Strategy
(Developed based on Ministry of Foreign Affairs, 2023)

The CLEAR Sky strategy emphasizes the importance of international cooperation in transboundary contexts between responsible authorities to ensure effective management of transboundary impacts. This is achieved through the exchange of information and experiences, as well as the legal commitments by each country to control and mitigate sources of transboundary haze pollution. Case No. 2 of the selected experiences highlights the limitations in analyzing common causes of potential changes and the incomplete projections of transboundary impacts, primarily due to restrictions in data exchange and insufficient cooperation with neighboring countries. This may be attributed to the fact that member countries often adhere to the "ASEAN way," which emphasizes non-interference and consensus-building. As a result, international cooperation within the ASEAN context, particularly in Thailand, has not been

as effective in dealing with transboundary issues as it could be. One mechanism that can enhance cooperation, even within the "ASEAN way," is promoting collaboration on transboundary haze pollution through bilateral mechanisms. Bilateral mechanisms serve as a tool that encourages cooperation between countries, designating one as a Party of Origin (PO) and the other as the Affected Party (AP). This approach supports more effective impact assessments, despite the differences in each country's legal frameworks. Therefore, advocating for the establishment of international cooperation mechanisms and identifying strategies to address transboundary impacts under the ASEAN way is a crucial and feasible approach (ESCAP, 2022).

Apart from the three main issues identified in the analysis of the selected experiences, it was also found that the "institutional framework" and "stakeholder involvement" are critical factors. For policies or laws to be effectively implemented, it is essential to have a dedicated institution that clearly understands its roles and responsibilities to drive capacity building to improve their roles and contribute to the overall success of the organization. Furthermore, the involvement of stakeholders from all relevant sectors—including government, private entities, and NGOs—is important in any decision-making process, fostering collaboration and ensuring a comprehensive approach to deal with transboundary impacts. Therefore, in dealing with transboundary impact, consideration of these key issues along with the TEIA process is likely to be a good trend in influencing the achievement of TEIA in the ASEAN context.

5.4 Summary

Chapter 5 explores experiences in dealing with transboundary environmental impact in ASEAN, focusing on the Thailand-Lao PDR border. Using documentary analysis to review relevant literature on the experiences in ASEAN transboundary impact and 3 selected experiences to obtain lessons learned from ASEAN's experiences in dealing with transboundary impacts, found that

ASEAN has been facing various significant transboundary environmental challenges (i.e., transboundary haze and water resource management), prompting the creation of regional agreements like the ASEAN Agreement on Transboundary Haze Pollution (AATHP) and the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (Mekong Agreement). Both agreements aim to address transboundary issues through cooperation. Nevertheless, the effectiveness of both agreements remains limited due to ASEAN's emphasis on non-interference policies, or the "ASEAN Way," which results in limited cooperation, a lack of enforcement mechanisms, and the absence of obligatory provisions specifying penalties for non-compliance. Consequently, this has led to differing interpretation and responses.

Although Thailand is an ASEAN member and a signatory to both the AATHP and the Mekong Agreement, these frameworks have not yet been effectively applied to deal with transboundary impacts. This leads to the identification of the key issues influencing the achievement of transboundary environmental impact assessments (TEIA) in the ASEAN context. It was found that these key issues can be categorized into three main areas:

- Legislative frameworks and instrument: Advocating for amendments or additions to provisions related to the consideration of transboundary issues and existing environmental criteria.
- Communication & awareness: Developing a database system as a tool for effective decision-making and enhancing the capacity of relevant authorities to adapt to changes in natural resources and the environment through the application of scientific research and tools.
- International cooperation: Advocating for the establishment of international cooperation mechanisms and identifying strategies to the most feasible approach to deal with transboundary impacts under the ASEAN way.

Ultimately, clear legislative frameworks and instruments and enhanced international cooperation, are essential for effectively managing transboundary environmental impacts in ASEAN, particularly between Thailand and Lao PDR.

CHAPTER 6

RESULTS AND DISCUSSION: Lessons learned from the Espoo Convention for the ASEAN context

This chapter presents the results of the third research question: “What are the key aspects as learned from the implementation of the Espoo Convention, to be taken into account for TEIA in Thailand? (i.e., How best to implement TEIA in Thailand?)” To respond this, it is essential to investigate the issues addressed in the Espoo Convention comparing with key elements as addressed in current ASEAN Agreements, which is already delineated in **section 2.8 of Chapter 2**. Meanwhile, the experiences of implementing the Espoo Convention as justified in **Chapter 4** are considered coupled with the findings of **Chapter 5**, to draw a concept of possibility in apply the practice and lessons learned into the ASEAN context. Then, gap Analysis framework is applied to seek for the key issues influencing the achievement of transboundary impact assessment prior to establish a framework of TEIA implementation roadmap for the Thai and ASEAN context.

6.1 Lessons learned from the implementation of the Espoo Convention for the ASEAN context

The previous findings based on the selected experiences (**Chapter 4** and **Chapter 5**) were analyzed to extract lessons learned that can be applied to managing transboundary impact issues in the ASEAN context as demonstrated in **Table 6.1**, which delivers the components suggesting that establishing legislative framework to implement TEIA practice is crucial for the ASEAN context, as the starting point for further actions. Once this is in place, communications between related parties are the key to initiate early consultation, get people to work as a joint commission or working groups, prior to the establishment of mutual agreement that relevant parties, e.g. PO and PA can apply as guidance for their operation regarding TEIA.

Meanwhile, based on the Gap Analysis framework, as proposed as a guide in **Chapter 3, Table 3.8**, assisting the investigation in this study, which compares the current situation in the ASEAN context (focusing on the Thai context) with the desired situation in the context of the member states of the Espoo Convention, existing gaps can be highlighted, and approaches identified to address them. By considering the issues arising from experiences in addressing transboundary impacts within both the Espoo Convention and ASEAN (summarized in **Table 6.2**), this analysis can facilitate the enhancement and implementation of TEIA within the ASEAN context, as shown in **Table 6.3**.

The Espoo Convention is one of the most comprehensive legal frameworks, providing clear provisions and issuing relevant guidance to facilitate the implementation of transboundary impact assessments. Moreover, the Espoo Convention is considered a process-orientated convention (ESCAP, 2022), so this leads

member states to take the necessary legal, administrative, or other measures to implement the provisions of the Convention, pursuant to Article 2.2, which is considered a legislative mechanism driving the consideration of transboundary impact assessments. As a result, most experiences are closely linked to implementation of the TEIA procedure. In the ASEAN context, agreements and related guidance have been issued as legal instruments to facilitate member states in addressing transboundary impacts. However, the consideration and assessment of environmental impacts remain limited in several dimensions, including the TEIA process, which is still voluntary implementation among member countries (MRC, 2023). This is largely influenced by the "ASEAN way," a key limitation that has hindered progress in achieving the objectives of the agreements. The two contexts demonstrate different experiences, leading to distinct key issues that influence the achievement of transboundary impact assessment.



Table 6.1 Key findings based on the Espoo Convention implementation experiences vs ASEAN agreement experiences derived from deductive along with solutions investigated from experiences in dealing with transboundary impacts

Issues	The Espoo Convention implementation experiences		ASEAN context based on ASEAN agreement	
	Espoo Convention implementation experiences, themed based on hybrid coding	Solution proposed regarding the experiences of the selected cases	Issue found in ASEAN experiences, themed based on deductive coding	Existing solution recommended found in reviewed cases
1 Inconsistency of defining key term and identifying lists of activities	There are variations in the interpretations of transboundary impacts, leading to discrepancies in determining the scope of transboundary impacts and list of activities likely to cause significant adverse transboundary impacts.	Early consultation or consultation (Poland, 2022) Establishing a joint commission or working group (UNECE, 2023b) Bilateral or multilateral agreements (Albania, 2022; Montenegro, 2022; UNECE, 2022a) >> To discuss different perspectives, set common criteria, and enhance understanding between the parties	1) The definition of “transboundary impact” has not yet been clearly defined consistently 2) The list of activities varies depending on the objectives of each agreement	Early consultations can support member countries by facilitating discussions on transboundary impacts and coordinating practical arrangements for addressing transboundary impacts in the EIA (Mekong River Commission, 2023) Advocating for the ASEAN Framework Agreement on EIA , as this framework would establish key principles and mechanisms for EIA in ASEAN, including TEIA, SEA, and the integration of climate change into EIA (ESCAP, 2022)
2 Lack of Clarity to identify Affected Parties	There has been a lack of clarity in the approach to defining the scope for identifying AP and ensuring equivalent opportunities and the right to participate in the procedure, which vary under national legislation.	Early consultation or consultation (Malta, 2022; Poland, 2022) Establishing a joint commission or working group (UNECE, 2023b) Bilateral or multilateral agreements (Poland, 2022; Spain, 2022; UNECE, 2022a) >> To ensure mutual understanding, safeguarding AP rights, and reducing potential conflicts.	Under the agreement in the ASEAN context, there are no clear criteria for identifying the AP (ASEAN, 2002; Mekong River Commission, 1995)	Early consultations can support member countries by facilitating discussions on transboundary impacts and coordinating practical arrangements for addressing transboundary impacts in the EIA (Mekong River Commission, 2023)
3 Differences in timeframe determination	In practice, the responsibility for setting the timeframe often falls on the PO in accordance with national EIA legislation. This can result in significant variations in timeframes between steps and countries.	Establishing a joint commission or working group (UNECE: Working group on EIA and SEA, 2022) Bilateral or multilateral agreement (Poland, 2022; UNECE: Working group on EIA and SEA, 2022) >> To address differences in timeframes and enhancing cooperation between parties.	Timeframe varies in each step of the TbEIA procedure, while it the has not been explicitly defined, as the parties can agree on it through early consultation (Mekong River Commission, 2023)	Early consultations can support member countries by facilitating discussions on transboundary impacts and coordinating practical arrangements for addressing transboundary impacts in the EIA (Mekong River Commission, 2023) Advocating for the ASEAN Framework Agreement on EIA , as this framework would establish key principles and mechanisms for EIA in ASEAN, including TEIA, SEA, and the integration of climate change into EIA (ESCAP, 2022)

The Espoo Convention implementation experiences			ASEAN context based on ASEAN agreement	
Issues	Espoo Convention implementation experiences, themed based on hybrid coding	Solution proposed regarding the experiences of the selected cases	Issue found in ASEAN experiences, themed based on deductive coding	Existing solution recommended found in reviewed cases
4	Language and translation challenges	<p>Translation and language issues are not explicitly addressed in the Espoo Convention, and the hidden complexities of language barriers can create substantial obstacles in the TEIA process, especially in countries with different official languages.</p> <p>Establishing a joint commission or working group (UNECE: Working group on EIA and SEA, 2022)</p> <p>Bilateral or multilateral agreements (Poland, 2022; Spain, 2022; UNECE: Working group on EIA and SEA, 2022)</p> <p>>> To overcome language barriers, closing communication gaps, and preventing misunderstandings.</p>	<p>The language used for the EIA report should be agreed upon during the early consultation, but it is typically English (Mekong River Commission, 2023)</p>	<p>A format for the response to the TbEIA initiation letter has been established, allowing parties to specify the required language of the documents (Mekong River Commission, 2023, p. 64)</p> <p>Advocating for the ASEAN Framework Agreement on EIA, as this framework would establish key principles and mechanisms for EIA in ASEAN, including TEIA, SEA, and the integration of climate change into EIA (ESCAP, 2022)</p>

Table 6.2 Key issues derived from 3 selected experiences in the ASEAN context, based on inductive coding, highlight gaps identified

The ASEAN context			
Issues	Suggested solutions in dealing with the issues		
a) Lack of consider transboundary impact	Legislative framework and instruments	Drive towards for amendments or additional on	<ul style="list-style-type: none"> ○ provisions regarding the consideration of transboundary issues ○ existing environmental criteria related to transboundary issues
b) Limitation in EIA legislation	International cooperation	Advocating for the establishment of international cooperation mechanisms to deal with differences in EIA legislation	<ul style="list-style-type: none"> ○ enhance understanding of relevant EIA legislation ○ strengthen cooperation in finding solutions for managing shared impacts
c) Develop database websites related to transboundary context	Communication and Awareness	Developing a database system as a tool for effective decision-making	<ul style="list-style-type: none"> ○ enhance website content to be more flexible while ensuring accurate and up-to-date information ○ improve the information to be easily understandable, facilitating communication and promoting engagement

Table 6.3 Gaps identified in different experiences under transboundary context

Key issues	The member states of the Espoo Convention context (Desired situation)	Thai context (Current situation)	Gap identified
Specific legislative framework	When parties become subject to the Espoo Convention, they are required to transpose its provisions into their national legislation, pursuant to Article 2. Selected experiences show that all parties have incorporated the provisions of the Espoo Convention into their national legislative frameworks. *,**	In Thailand context, although there is a legal framework that can be applied to address various issues and situation, a significant weakness is the lack of specific legislation to deal with transboundary impact issues. (Dávila et al., 2020; Swangiang, 2018)	Lack of clear legislative framework related to transboundary context
TEIA implementation	The Espoo Convention is considered a process-orientated convention, so this leads member states to take the necessary legal, administrative, or other measures to implement the provisions in order to achieve the goal of the Convention. *,**	Transboundary considerations are not explicitly addressed in national legislation, resulting in the voluntary implementation of TbEIA or its application within a limited scope of activities under the Mekong Agreement. (MRC, 2023)	TEIA procedure is still not mandatory in Thai national legislation, but there is partial experience related to the Mekong Agreement.
International cooperation	Based on selected experiences, international cooperation can facilitate the TEIA procedure through bilateral-multilateral agreements or early consultation. *,**	The ASEAN way, emphasizing non-interference, limits international cooperation among member countries, even in discussions on transboundary issues like haze pollution. (Charusombat, 2023; Ghani et al., 2017)	Cooperation is limited
Data exchange / Transparency	Equitable access to EIA information and TEIA implementation experiences is provided through official website, allowing interested parties, individuals, and relevant authorities to access and learn from these resources. *,**	The database system has been developed to present and collect scientific and statistical data related to transboundary impact issues, with the data accessible via an official public website for apply by individuals and authorities in further development. * (Mahasarakham University, 2023; Somporn et al., 2023)	A developed database website on transboundary issues and EIA information has been established, although some websites still face language limitations
Public participation (PP) in transboundary context	Experiences of PP process are presented through questionnaire report, found challenges in public participation include language barriers, difficult translations, and short timeframes for effective engagement *,**	The Mekong Agreement emphasizes the importance of public participation and access to information in addressing transboundary impacts, for fostering collaborative policies for environmental sustainability and effective solutions through all stakeholder cooperation. (Mahasarakham University, 2023)	Public participation related to transboundary context is still limited through the experience of TbEIA under Mekong agreement.

Remark: * Referring to source based on relevant literatures and ** referring to source based on 16 selected experiences from questionnaire report, and 6 selected experiences from the implementation committee report

6.2 Key issues influencing the achievement of transboundary impact assessment

Based on the experiences and approaches in dealing with transboundary impacts, key issues have been identified within the different contexts of the selected experiences. These key issues serve as approaches to addressing the problematic differences that may act as obstacles, hindering the success of the TEIA procedure. A summary of the key issues in each context is presented in **Table 6.4**. In the context of member states, many countries have incorporated transboundary issues and the TEIA procedure under the Espoo Convention into their national legislation, and they have gained significant experience through implementing TEIA (referring to the Review of Implementation Reports from the 1st review in 2003 to the present).

As a result, the key issues that emerge are centered on processes and tools that support the effective implementation of TEIA. Whether it is (1) early consultation or consultation between the parties is an approach that helps to enhance the quality of TEIA procedure, which is a process that uses dialogue to find a compromise in dealing with issues arising from differences that arise; and (2) bilateral or multilateral agreement is considered a legal instrument to facilitate both parties to create legislative frameworks to deal with differences in the EIA system, language, or perspective in a transboundary context. With a clear legislative framework, these key issues are considered important for effectively addressing problems arising from the transboundary context to meet the goals of the Espoo Convention.

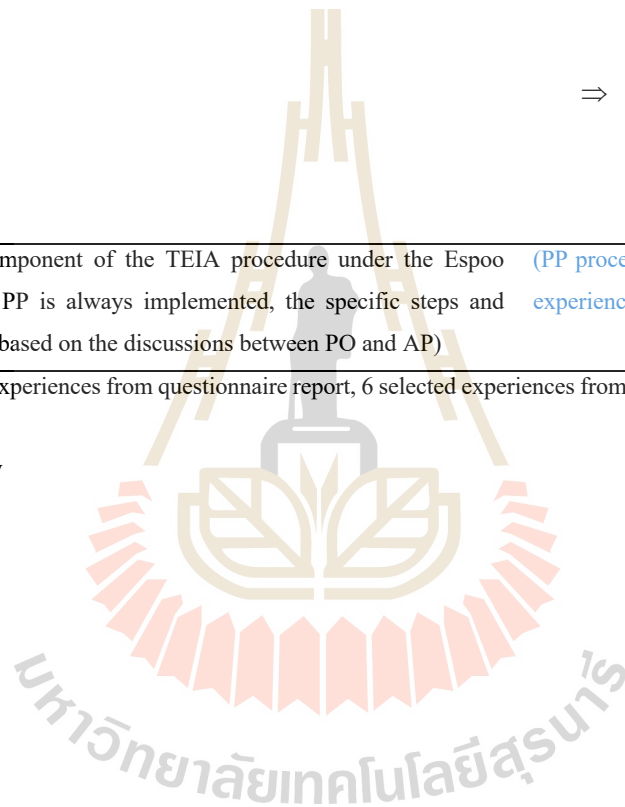
Table 6.4 A summary of the key issues influencing the achievement of the TEIA procedure within the different contexts of the selected experiences

Key issues	The member states of the Espoo Convention context	The Thai context
Specific legislative framework	(Based on selected experiences from questionnaire report, all selected experiences have incorporated the provisions of the Espoo Convention into their national legislative frameworks in order to achieve the goal of the Convention)	(A) Legislative framework and instruments Amending the Environmental Act to incorporate transboundary considerations into legislative instruments is crucial for establishing a comprehensive legislative framework .
TEIA implementation	(1) Early consultation or consultation between the Parties ⇒ Early consultation allows for better role understanding, process timelines, budget planning, and prioritization ⇒ Consultations helping define (1) Timeframes for each step; (2) Language used in consultation, public participation, and documentation	(TEIA procedure is still not mandatory in Thai national legislation, but there is partial experience related to the Mekong Agreement)
International cooperation	(2) Bilateral or multilateral agreement ⇒ Bilateral and multilateral agreements are crucial for helping to bridge gaps in differing views in transboundary context, build trust between parties, and reduce delays ⇒ Joint commissions or working groups are essential for facilitating the implementation of international agreements (i.e., reviewing TEIA documentation, exchanging information, or agreeing on language)	(B) International cooperation ⇒ Advocating for the establishment of international cooperation mechanisms within the ASEAN way is a crucial and feasible approach to deal with transboundary impacts. ⇒ Bilateral mechanisms enable more effective impact assessments, even with differences in legal frameworks.
Data exchange / Transparency	(Equitable access to TEIA implementation experiences is provided through UNECE official website, allowing interested parties, individuals, and relevant authorities to access and learn from these resources)	(C) Communication and Awareness

Key issues	The member states of the Espoo Convention context	The Thai context
		<p>⇒ Effective communication is key for conveying objectives and disseminating relevant information to stakeholders, enhancing the capacity of individuals and authorities</p> <p>⇒ Considering scientific research and tools as an instrument to improve communication strategies, including the development of database systems for accessible, verifiable, and transparent information to foster public awareness.</p>
Public participation (PP) in transboundary context	(PP is a critical component of the TEIA procedure under the Espoo Convention. While PP is always implemented, the specific steps and methods may differ based on the discussions between PO and AP)	(PP process related to transboundary context is still limited through the experience of TbEIA under Mekong agreement)

Remark¹: Source and findings based on 16 selected experiences from questionnaire report, 6 selected experiences from the implementation committee report, and 3 selected experiences in Thai context

Remark²: PO = Party of Origin; AP = Affected Party



In the context of Thailand, as mentioned earlier, there is still no clear legislative framework addressing transboundary impacts. Therefore, based on the experiences identified, the key issues focus on (A) the legislative framework and instruments necessary to advocate for legal improvements and amendments to address transboundary impact; Since the "ASEAN way" poses operational restrictions, (B) international cooperation, regarded as an appropriate approach for managing transboundary context, ensures that TEIA can be effectively conducted and aligns with the needs of the concerned parties, and (C) communication and awareness are crucial in encouraging individuals and authorities to become more informed. This includes providing neighboring countries with transparent and equitable access to information.

Moreover, referring to **Table 6.3**, for the Thai context, the absence of legal provisions in dealing with transboundary issues has resulted in a gap in achieving the objectives of the agreement when compared to the Espoo Convention framework. Thus, a closer examination of the key aspects and the experiences of the Espoo Convention reveals that early consultation, the establishment of joint working groups, and the formation of bilateral or multilateral agreements are recognized as effective strategies in dealing with transboundary issues in the development and successful implementation of the TEIA procedure. Consequently, international cooperation emerges as a critical factor in ensuring the integration of all necessary steps toward achieving success and leading to improve decision-making process for ensuring environmentally sound sustainability.

6.3 Generating a roadmap for TEIA implementation in the Thai context based on key aspects as learned from the implementation of the Espoo Convention

One of the key aspects that is crucial and serves as the foundation for driving the EIA process in a transboundary context is international cooperation. It leads to decision-making that ensures environmentally sound practices and enhance achieve the ultimate goal of the Espoo Convention, which aligns with the SDGs. Therefore, in a transboundary context, providing opportunities for participation between the Party of Origin and Affected Parties plays an important role in making the TEIA process transparent, as emphasized by provisions (Article 2.6, 3, 4.2, 6.1) under the Espoo Convention, which ensure equivalent opportunities for all parties. International cooperation serves as a starting point for addressing various key issues, including agreements on the TEIA process, definitions, frameworks, and mutual consensus to establish legislative mechanisms, such as bilateral or multilateral agreements.

On the other hand, in the ASEAN context, the ASEAN way poses a significant challenge to the participation process and international cooperation, as the principle of non-interference contributes to a lack of transparency (Dávila et al., 2020). It can be seen that both contexts have entirely different experiences and approaches to dealing with transboundary impacts (as outlined in **Table 6.3**). However, despite the differences between the two contexts, some key issues that arise under the Espoo Convention context play an important role in triggering or highlighting crucial aspects to help develop approaches for managing transboundary impacts in the ASEAN context. This has resulted in the development of a roadmap for implementing TEIA approaches,

based on key aspects and is considered an important step for influencing the achievement of the TEIA procedure in both the ASEAN, as summarized in **Figure 6.1**. Framework for developing approaches to TEIA implementation can be divided into two levels: (1) at national level or Thai context and (2) at international level or ASEAN context. The details are as follows:

(1) At the National level

In the context of Thailand, it was found that, strengthening the legislative mechanism serves as both an initial step and a basic key mechanisms for advancing the legislative framework related to transboundary impact. It functions as a legislative instrument to drive the EIA process in the context of Thailand, which helps ensure that responsible authorities are aware of their roles and responsibilities in fulfilling their commitments. According to Swangiang (2018) identified the integration of a sustainability approach into the EIA system as crucial, particularly through the development of tools such as SEA, a key instrument in dealing with the transboundary impacts that arise from policies, plans, and programs (PPPs). This integration would promote comprehensive assessments and informed decision-making across all levels. Similarly, Dávila et al. (2020) emphasized that the SEA Protocol is a relevant tool under the Espoo Convention, accessible to non-UNECE countries. Therefore, the application of SEA protocol in the transboundary context is essential for refining the EIA process and serves as a supportive tool to promote regional cooperation through transboundary consultation.

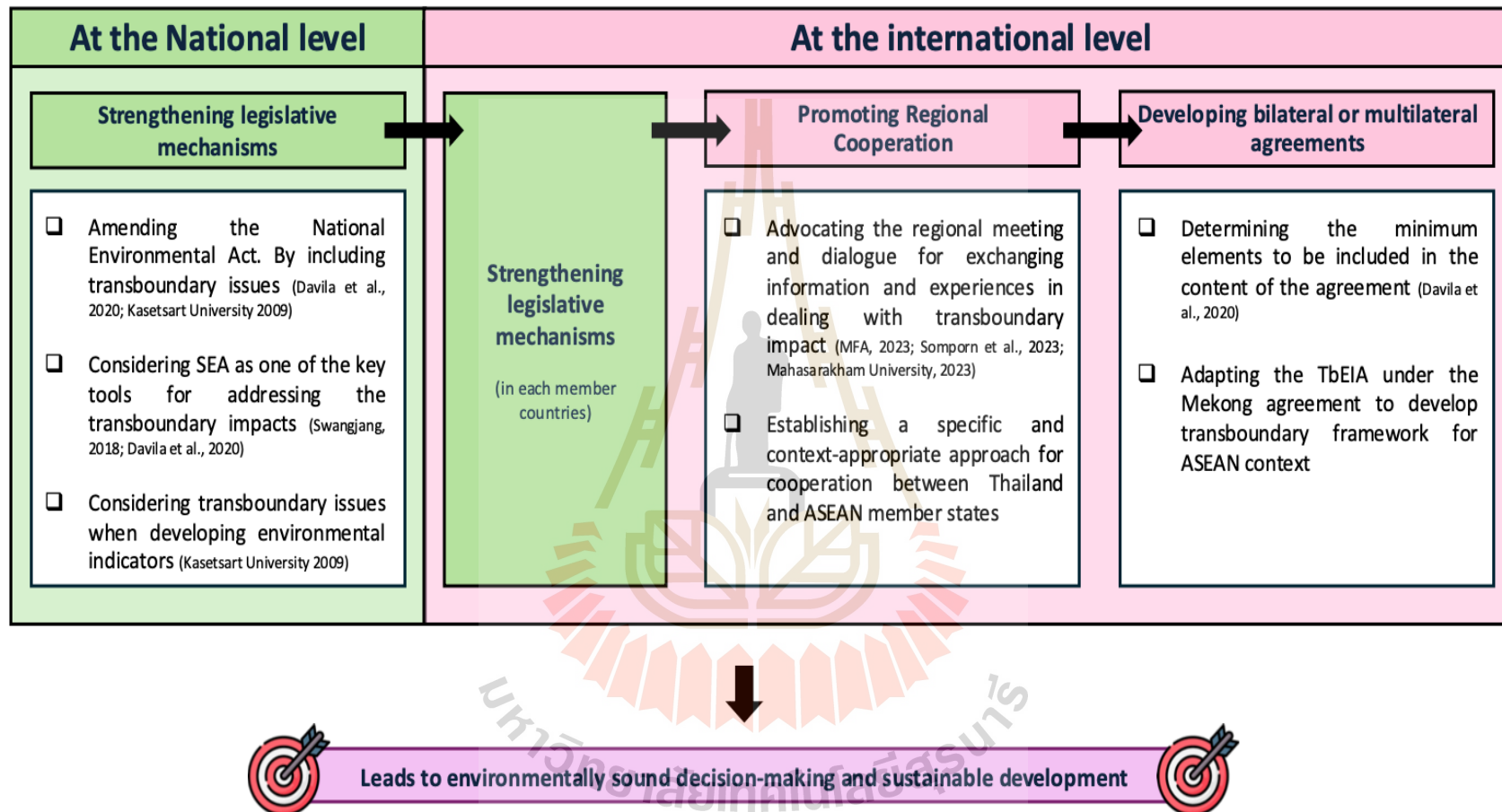


Figure 6.1 Framework for developing approaches to TEIA implementation in both national and international level

Moreover, Jarusombat (2019) highlighted a strength of Thailand's legislative framework is the existence of various laws that can be applied to address various issues. Therefore, amending the national Environmental Act. by stipulating or considering the transboundary impacts issues or developing existing environmental criteria by taking into account transboundary issues for projects that occur in border areas. This amendment plays a crucial role in strengthening the legislative mechanism to create a robust framework and lead to developing legislative instruments that specifically address transboundary impacts. This includes amending relevant laws, such as "*the Control of Occupational Diseases and Environmental Diseases Act B.E. 2019 (A.D. 2019)*". The enactment of this Act clearly defines general provisions, the roles, and responsibilities of authorities, and establishes approaches for the surveillance, prevention, and control of occupational and environmental diseases. Including the determination of penalties, which represent a strength of Thai law and serve as an incentive for all parties involved to fulfill their obligations. Consequently, this Act is considered one of the legislative frameworks that can be expanded to deal with transboundary impact issues and serves as a starting point for developing a legislative mechanism to tackle environmental pollution through cooperation between affected communities and project proponents (Article 28).

In addition, if domestic law is enhanced by integrating provisions from the Agreement in the ASEAN context (AATHP and the Mekong agreement) that Thailand has signed, this approach is regarded as a positive approach that will address existing gaps related to the legislative framework, thereby

enhancing the clarity of transboundary impact management, and aligning it more closely with sustainable development principles (Jarusombat, 2019). Applying key aspects of the Espoo Convention directly may present challenges in the Thai context. However, adapting the TbEIA under the Mekong Agreement, which was developed within the ASEAN framework, can serve as a starting point for aligning EIA system with Thailand's specific context. This adaptation may lead to the development of laws that incorporate this principle, allowing for adjustments and amendments to address transboundary issues, and making the forecasting and assessment of environmental impacts more comprehensive.

(2) At the international level

Promoting international cooperation is a subsequent process following the strengthening of the legislative mechanism. This approach aims to enhance engagement with member states through regional meetings and dialogues, facilitating the exchange of information and experiences in addressing transboundary impacts and identifying common approaches to manage these impacts more comprehensively. Although member countries have established regional agreements to address transboundary impacts, such as (1) the ASEAN Agreement on Transboundary Haze Pollution (AATHP) and (2) the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, the development of bilateral and multilateral agreements within these frameworks has been shown to play a critical role in building mutual trust and sharing view of the content and area of application of the Convention (de Boer,

1999; Netherlands, 2000). This is particularly important for neighboring countries engaged in projects likely potential transboundary impacts.

Therefore, promoting regional cooperation plays a crucial role in triggering the development of bilateral and multilateral agreements to close the gaps arising from differences in legislation, language, and approaches to deal with potential impacts. Involving the ASEAN way as the elements to be included in the content of bilateral or multilateral agreements remains an important consideration, as it may impact cooperation and transparency within these processes. For this reason, developing bilateral or multilateral agreements are essential processes for creating specific and context-appropriate approach for cooperation between Thailand and ASEAN member states, to find an optimal approach in dealing with transboundary impact on the basis of the ASEAN way. Thus, promoting the parties to collaboratively establish a comprehensive definition, determine an appropriate timeframe, and provide adequate processes for public participation and consultation in order to ensure that the TEIA process is inclusive and effectively implemented, as well as thorough in impact forecasting and assessment.

According to key aspects found under the member states of the Espoo Convention context, international cooperation is an important issue in dealing with transboundary issues. Similarly, in the context of ASEAN and Thailand, cooperation is regarded as crucial to fully enable the assessment or impact forecasting process to be carried out in the ASEAN context. Strengthening the legislative mechanism is also important because most member countries have not considered transboundary impact

(Swangjang, 2018), including member countries still adhering to the principle of ASEAN way or non-interference approach, which makes cooperation still limited (Charusombat, 2023; Ghani et al., 2017). In the ASEAN context, strengthening national legislative frameworks within each member state, alongside integrating provisions from existing agreements related to transboundary impacts (such as the AATHP and the Mekong Agreement) into their national legislation, represents a viable approach to establishing a comprehensive regional legislative instrument or ASEAN-specific legislative framework on transboundary environmental governance. Such efforts are essential for advancing regional cooperation and fostering the formulation of binding agreements. However, aligning these initiatives with the principles of the ASEAN Way presents a significant challenge that member states must navigate to ensure the effective implementation of EIA in transboundary contexts.

6.5 Summary

Chapter 6 evaluates how lessons from the Espoo Convention can be applied to TEIA in Thailand and ASEAN. A gap analysis framework was used to identify key differences between the frameworks of Espoo Convention member states and the ASEAN context, allowing for an assessment and forecast of key aspects learned from the Espoo Convention's implementation for TEIA in Thailand.

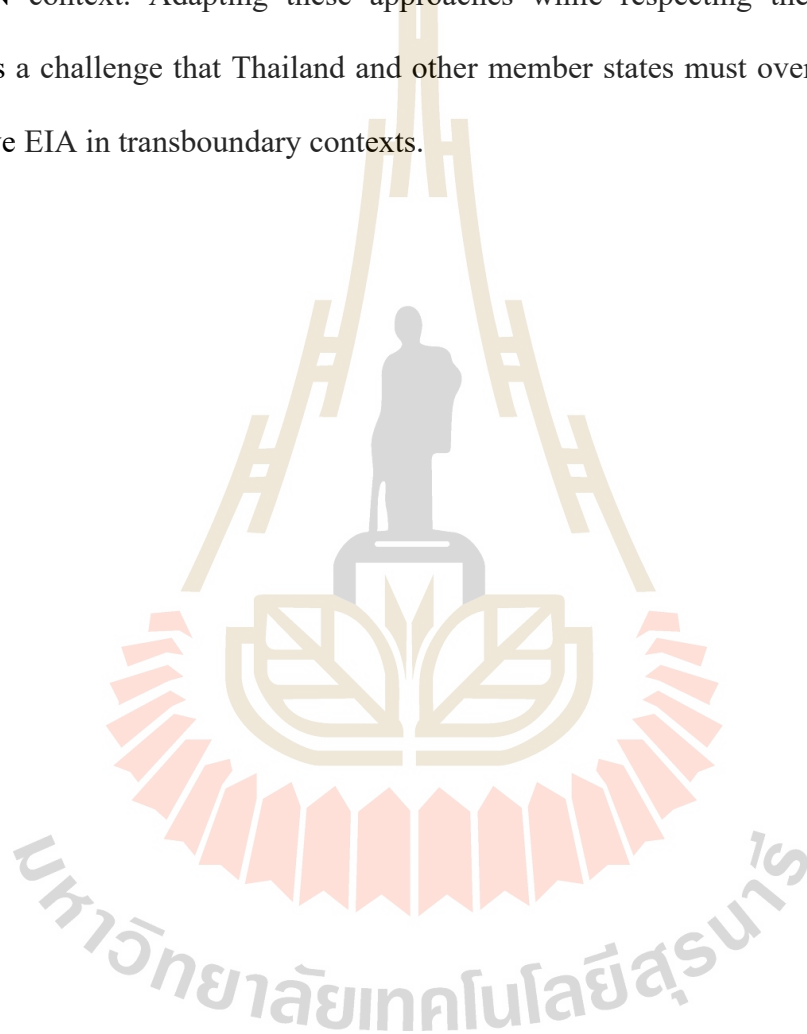
The Espoo Convention provides a comprehensive legal framework with clear provisions and guidance for TEIA. As a process-oriented convention, it mandates member states to implement legal and administrative measures, making TEIA a legislative priority. As a result, most experiences are closely linked to the implementation of the TEIA procedure. In the ASEAN context, while agreements and

guidance exist, TEIA remains voluntary among member states, influenced by the non-interference principle, or the "ASEAN Way." Similarly, in Thailand, the lack of a clear legislative framework, defined guidelines, and responsible authorities highlighting significant gaps in dealing with transboundary impacts comprehensively within the EIA system. Therefore, another critical challenge is ASEAN's limited international cooperation, which restricts collaborative decision-making on transboundary environmental issues. To deal with these challenges, this has led to the development of a framework for developing approaches to TEIA implementation can be divided into two levels:

- **At national level:** Strengthening the legislative mechanism serves as both an initial step and a key tool for advancing the legislative framework related to transboundary impacts. This includes integrating sustainability into the EIA system, amending laws by considering the transboundary impacts issues for enhancing legal clarity and enforcement. Additionally, integrating ASEAN agreements can further enhance Thailand's transboundary impact management.
- **At the international level:** Promoting international cooperation to facilitate engagement among ASEAN member states. Including developing bilateral and multilateral agreements are key to building trust and addressing differences in legislation and approaches to find an optimal approach in dealing with transboundary impact, while respecting the ASEAN Way.

International cooperation is essential in dealing with transboundary issues, in both the Espoo Convention and ASEAN context. However, the non-interference

principle (or ASEAN Way) has limited cooperation among member states, hindering effective impact assessments. Strengthening national legislative frameworks and advocating for amendments to regional agreements through regional dialogues are vital strategies for creating a comprehensive transboundary framework tailored to the ASEAN context. Adapting these approaches while respecting the ASEAN Way remains a challenge that Thailand and other member states must overcome to ensure effective EIA in transboundary contexts.



CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

The research study on “*Considering the concept of the Espoo Convention as a tool for transboundary environmental impact assessment in ASEAN countries: a case of northern Thailand bordering Lao PDR*” aims to review the key concept of Espoo Convention and existing memorandum agreements in ASEAN countries; to conduct a gap analysis by comparing the experiences of Espoo Convention implementation in ratified countries with the ASEAN context, in order to identify key issues influencing the achievement of transboundary environmental impact assessments (TEIA) and to establish a roadmap to implement the Espoo Convention on TEIA in ASEAN countries (e.g. focusing on northern Thailand bordering to Lao PDR). The data collection was conducted based on documentary analysis, by examining all relevant documents. Data analysis was done based on hybrid coding, to obtain initial data leading to thematic analysis identifying lessons learned, challenges, and limitations in dealing with transboundary issues, including practical insights and observations across different contexts; NVivo 14 was applied as a tool organizing data and the analysis in this process. The themes obtained deliver experiences, challenges, limitations, and key issues influencing the achievement of TEIA in different contexts. Gap analysis of the implementation experiences of the Espoo Convention context was conducted in line with ASEAN experiences in dealing with transboundary impact. Key aspects are

identified as an input for roadmap guiding the application of TEIA into the Thai and ASEAN context.

7.1 Espoo Convention implementation experiences

The Espoo Convention establishes a structured framework for TEIA implementation, but in practice, its implementation varies regarding different context of the parties (countries) involved, e.g. national EIA laws, and differing perspectives between the Party of Origin and the Affected Party. These variations create challenges in defining significant transboundary impacts, identifying affected parties, and ensuring transparency in public participation and decision-making. As such, it was addressed that enhancing international cooperation is crucial to foster mutual trust and harmonize TEIA processes across different legal systems, so that effective management of these challenges can be facilitated. Therefore, collaborative mechanisms—such as early consultations and bilateral and multilateral agreements—play a key role in establishing a common understanding of TEIA procedures, ensuring that the TEIA process is effectively implemented to jointly manage and address transboundary impacts between the Party of Origin and the Affected Party. To achieve these actions, each parties need to understand the context of each other, and that of their own.

7.2 ASEAN experiences regarding transboundary environmental impact management

In the ASEAN context, transboundary environmental challenges, particularly haze pollution and water resource management in the Mekong River Basin, have driven

regional agreements, including the ASEAN Agreement on Transboundary Haze Pollution (AATHP) and the Agreement on the cooperation for the sustainable development of the Mekong River basin (Mekong Agreement). While these agreements were designed to facilitate international cooperation to deal with transboundary issues, their effectiveness has been limited by ASEAN's principle of non-interference, resulting in the absence of enforcement mechanisms and the lack of mandatory compliance measures. Given this, it can be said that Thailand is still considered absence from providing specific transboundary legislations, e.g. limited scope of existing EIA provisions remains hinder the implementation of TEIA in the Thai and ASEAN context. For this reason, strengthening legal frameworks at both national and international level, along with a deep discussion through international cooperation mechanisms are crucial steps toward integrating TEIA, as a fundamental component of ASEAN's environmental governance.

7.3 Lessons learned from the implementation of the Espoo Convention

It can be highlighted that these two contexts are distinctly different; namely, the Espoo Convention establishes a comprehensive legal framework for TEIA, mandating member states to implement legal and administrative measures, making TEIA a legislative priority. As such, TEIA procedures are integrated into national frameworks of the member countries. In contrast, ASEAN's TEIA approach remains voluntary, influenced by the ASEAN Way, which is likely to limit legal enforcement and international cooperation. Similarly, Thailand lacks a clear legislative framework,

defined guidelines, and designated authorities, leading to significant gaps in dealing with transboundary impacts within its EIA system.

To deal with these challenges, by learning from the experiences of implementing the Espoo Convention, a two-level TEIA implementation framework is proposed as the findings of this study; i.e. 1) at the national level, there should be strengthening of the legislative framework by integrating sustainability issues, including appropriate approaches into the EIA system, amending environmental laws to include relevant protocols regarding transboundary impacts, if proposed project could cause the issue; and incorporating ASEAN agreements to improve transboundary impact management; and 2) at the international level, promoting cooperation through bilateral and multilateral agreements to build clear directions for relevant parties to follow so that trust, harmonize regulations, and manage transboundary impacts can be nurtured.

It is clear that the lessons reflected from the experiences of implementing the Espoo Convention in ratified countries, and the practice in ASEAN contexts point out the importance of international cooperation in transboundary environmental governance. Nevertheless, it seems challenges still remained as the ASEAN's non-interference principle restricts collaboration, limiting effective TEIA implementation. Therefore, strengthening national legislative frameworks in parallel with integrating provisions from existing agreements related to transboundary impacts through ASEAN dialogues can be critical steps toward establishing comprehensive transboundary framework tailored to ASEAN's context. It could be worthwhile consider extending the call for action to countries outside ASEAN, for example, China and other countries adjacent to the boundaries of the ASEAN countries.

7.4 Reflecting on research methodology

This study is a qualitative research study based on secondary data; therefore, in order to obtain experiences in dealing with transboundary impact in the member states context of the Espoo Convention, the questionnaire report is considered as one of the tools and criteria frameworks that is important for this study. From the reading and re-reading process and synthesizing through responding questionnaire reports responded by the parties, it was found that the advantage of questionnaire reports is open access to practical experience data for member parties and for those who are interested in accessing such data. In addition, a questionnaire report is developed based on Article and provision under the Espoo Convention; thus, the data is comprehensive into practical experience and TEIA procedures of the parties in different contexts. Moreover, the findings from responding parties can be further developed in many ways, whether it be developing TEIA procedures to be more appropriate, extending them to serve as a model framework for TEIA processes in other contexts, or even extending it. Academically, in order to make the TEIA concept more widespread.

Meanwhile, the questionnaire report still has some weaknesses, namely the nature of the parties' responses to questions. It was found that if the parties answered the questions comprehensively and carefully considered to answer the questions, it can be an important approach to facilitate revelations of urgent issues which may require solutions or further crucial actions, including actual limitations under the TEIA implementation. This could lead to the improvement of TEIA procedures under the Espoo Convention to be more effective.

7.5 Recommendations

7.5.1 Recommendations for policy

- 1) Strengthening the legislative mechanism is very important for leading IA legislative to the upper tiers for dealing with transboundary impact, namely applying SEA in a transboundary context, or considering the Espoo Convention as a model to develop a legislative framework and instrument related to transboundary issues.
- 2) Continuing dialogue or meeting could help driving the initiation of commitments among stakeholders to address cross-border impacts, and this is the basis of cooperation that will lead to international cooperation without the ASEAN way obstructing the progress of development agreement in ASEAN context.
- 3) Promoting and developing a clear approach for practice implementation, including the determination of penalty for non-compliance, although this could be challenging, but it should be prioritized in this context.

7.5.2 Recommendations for Future Research

Future research can play an important role in refining the TEIA process, enhancing international cooperation, and promoting sustainable development in the ASEAN region

- 1) While this study has provided insights into experiences related to transboundary impacts in the ASEAN region, several key issues warrant further exploration to enhance understanding and effectiveness. Specifically, the institutional framework and stakeholder involvement are

essential for fostering collaboration and ensuring a comprehensive approach to addressing transboundary impacts, which are necessary for the effective implementation of policies or laws.

- 2) Research on more cases of TEIA practice should be granted, and conducted by relevant parties from different countries, so that more essential insights can be established for better mutual understanding, co-production of knowledge to tackle the barriers, to build trust, and to promote true collaborations on this issue in this region.
- 3) The study and collection of data on the mindset of all stakeholders involved in transboundary impact management, including affected parties should be encouraged and supported.

REFERENCES

- Albania. (2022). *Questionnaire for the report of ALBANIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021*. U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Albania_EIA.pdf
- Albrecht, E. (2008). Implementing the Espoo Convention in transboundary EIA between Germany and Poland. *Environmental Impact Assessment Review*, 28(6), 359-365.
- Aquillas, N. A., Mukong, A. K., Kimengsi, J. N., & Ngangnchi, F. H. (2022, 2022/08/01/). Economic activities and deforestation in the Congo basin: An environmental kuznets curve framework analysis. *Environmental Challenges*, 8, 100553. <https://doi.org/https://doi.org/10.1016/j.envc.2022.100553>
- ASEAN, S. (2002). *ASEAN agreement on transboundary haze pollution*.
- ASEAN, S. (2008). *The ASEAN Charter*. <https://asean.org/wp-content/uploads/images/archive/publications/ASEAN-Charter.pdf>
- ASEAN, S. (2015). *ASEAN Economic Community Blueprint 2025*. ASEAN Secretariat.
- ASEAN, S. (2016a). *Master Plan on ASEAN Connectivity, 2025*. ASEAN Secretariat.
- ASEAN, S. (2016b). Roadmap on ASEAN cooperation towards transboundary haze pollution control with means of implementation. *Singapore Centre for International Law, National University: Singapore*.
- ASEAN, S. (2024). *About ASEAN Haze Portal*. ASEAN Secretariat. <https://hazeportal.asean.org>
- ASEAN, S. (n.d.). *About ASEAN*. The ASEAN Secretariat. <https://asean.org/about-asean>
- Assavarak, P., Bunsri, T., & Nunsunanon, S. (2023). การพัฒนาระบบเฝ้าระวังผลกระทบทางสุขภาพโดยชุมชน จังหวัดน่าน ประเทศไทย กรณี มลพิษข้ามพรมแดนจากโรงไฟฟ้าถ่านหินหงสา ประเทศลาว
- Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative research*, 1(3), 385-405.

- Barbara, G., Strange, T., Davetanivalu, j., & Chu Shing-Galuvao, E. (2020). *STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) Guidelines for Pacific island countries and territories*. <https://doi.org/10.13140/RG.2.2.22757.63202>
- Bastmeijer, K., & Koivurova, T. (2008). Transboundary environmental impact assessment: An introduction. *THEORY AND PRACTICE OF TRANSBOUNDARY ENVIRONMENTAL IMPACT ASSESSMENT*, Kees Bastmeijer, Timo Koivurova, eds., Brill/Martinus Nijhoff.
- Belarus, R. o. (2022). *Questionnaire for the report of the Republic of Belarus on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-07/Belarus_EIA_EN.pdf
- Belgium. (2022). *Questionnaire for the report of BELGIUM – FEDERAL GOVERNMENT on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Belgium_EIA_WR%2BFR%2BBCCR_FIN.pdf
- Boyle, A. (2011). Developments in the international law of environmental impact assessments and their relation to the Espoo Convention. *Review of European Community & International Environmental Law*, 20(3), 227-231.
- Braun, V., & Clarke, V. (2006, 01/01). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Bruch, C., Nakayama, M., Troell, J., Goldman, L., & Maruma Mrema, E. (2007). Assessing the assessments: improving methodologies for impact assessment in transboundary watercourses. *Water Resources Development*, 23(3), 391-410.
- C-site report platform. (2025). บันทึกข้อมูลสายลับธรรมชาติ (*Nature Spy*). C-site report platform. Retrieved 9 March from <https://www.csitereport.com/nexus>
- Chanchitpricha, C. (2012). *Effectiveness of Health Impact Assessment (HIA) in Thailand: a case study of a Potash mine HIA in Udon Thani, Thailand* University of East Anglia].
- Chanchitpricha, C., & Bond, A. (2013, 2013/11/01/). Conceptualising the effectiveness of impact assessment processes. *Environmental Impact Assessment Review*, 43, 65-72. <https://doi.org/https://doi.org/10.1016/j.eiar.2013.05.006>
- Chanchitpricha, C., & Bond, A. (2015). Procedural effectiveness of the new environmental health impact assessment (EHIA) process applied to power plant projects in Thailand. Proceeding of 35th Annual Conference of the International Association for Impact Assessment Conference,

- Chanchitpricha, C., Bond, A., Hanchenlaksh, C., Sittitoon, N., Runglek, P., & Viwatrujirapong, P. (2024). Assessing Research Effectiveness and Conceptualising Research Impact Assessment Framework: A Case of Developing Community-Led Health Impact Monitoring in Nan Province, Thailand (Regarding Transboundary Pollution Risks Around Lao PDR – Thailand Border).
- Chanchitpricha, C., Morrison-Saunders, A., & Bond, A. (2019). Investigating the effectiveness of strategic environmental assessment in Thailand. *Impact Assessment and Project Appraisal*, 37(3-4), 356-368. <https://doi.org/https://doi.org/10.1080/14615517.2019.1595941>
- Chanchitpricha, C., Swangjang, K., & Morrison-Saunders, A. (2021). Addressing the spectrum of strategic environmental assessment potential: evolving practice in Thailand and its effectiveness. In T. B. Fischer & A. Gonzalez (Eds.), *Handbook on Strategic Environmental Assessment* (pp. 402-423). Edward Elgar Publishing.
- Charusombat, P. (2023). ASEAN cooperation on transboundary haze pollution: The perspective of institutional incremental change. *Journal of Environmental Information Science*, 2022(2), 1-12.
- Clarke, B., & Vu, C. C. (2021). EIA effectiveness in Vietnam: key stakeholder perceptions. *Heliyon*, 7(2).
- Creswell, J. W. (2007). *Qualitative Inquiry & Research Design. Choosing Among Five Approaches*. SAGE Publications.
- Czech, R. (2022). *Questionnaire for the report of the Czech Republic on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Czechia_EIA.pdf
- Damián, R., & Zamorano, C. I. (2022, 2022/09/01/). Environmental impact assessment of high-speed railway tunnel construction: A case study for five different rock mass rating classes. *Transportation Geotechnics*, 36, 100817. <https://doi.org/https://doi.org/10.1016/j.trgeo.2022.100817>
- Dávila, J. G., Zhang, J., & Kørnøv, L. (2020, 2020/09/01/). Challenges to carry out transboundary environmental assessment in ASEAN countries. *Environmental Impact Assessment Review*, 84, 106432. <https://doi.org/https://doi.org/10.1016/j.eiar.2020.106432>
- de Boer, J. J. (1999). Bilateral agreements for the application of the UN-ECE convention on EIA in a transboundary context. *Environmental Impact Assessment Review*, 19(1), 85-98.

- Department of the Environment, U. K. (1989). *Environmental Assessment: A Guide to the Procedures*. HMSO London.
- Douglas, I. (2005). The Mekong river basin. *The physical geography of Southeast Asia*. Oxford University Press, Oxford, 193-218.
- Eastham, J., Mpelasoka, F., Mainuddin, M., Ticehurst, C., Dyce, P., Hodgson, G., Ali, R., & Kirby, M. (2008). Mekong river basin water resources assessment: Impacts of climate change. *Water for a Healthy Country National Research Flagship Report; Commonwealth Scientific and Industrial Research Organisation (CSIRO): Canberra, Australia*.
- Elder, M., & Ellis, G. (2022, 2022/07/23). ASEAN countries' environmental policies for the Sustainable Development Goals (SDGs). *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-022-02514-0>
- ESCAP, U. (2022). Technical report and recommendations to strengthen environmental impact assessment procedures in ASEAN. <https://repository.unescap.org/handle/20.500.12870/4456#>
- Estonia. (2022). *Questionnaire for the report of ESTONIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021*. U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Estonia_EIA.pdf
- Faith-Ell, C., & Fischer, T. B. (2021). 11. Strategic environmental assessment in transport planning. *Handbook on strategic environmental assessment*, 164.
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods*, 5(1), 80-92.
- Fitriyanti, F., & Gunawan, Y. (2019). Post-Asean Agreement on Transboundary Haze Pollution: How to Settle the Dispute Settlement? *Hasanuddin Law Review*, 5(3), 253-265.
- Flyvbjerg, B. (2014). What you should know about megaprojects and why: An overview. *Project management journal*, 45(2), 6-19.
- Folmer, H., & Van Mouche, P. (2000). Transboundary pollution and international cooperation. *The international yearbook of environmental and resource economics*, 2001, 231-266.
- Fongissara, N., & Buddharaksa, W. (2022). ASEAN agreement on transboundary haze pollution management in mainland southeast asia. *Asia Social Issues*, 15(6), 253039.

- Gachechiladze-Bozhesku, M. (2014, 2014/01/02). Learning from transboundary environmental impact assessment under the Espoo Convention: a case of the Neman Hydropower Plant, Belarus. *Impact Assessment and Project Appraisal*, 32(1), 81-86. <https://doi.org/10.1080/14615517.2013.873187>
- Georgia. (2022). *Questionnaire for the report of Georgia on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Georgia_EIA.pdf
- Ghani, F. A., Redzuan, N. I. N., Nasir, N. F. M., & Salamat, M. (2017). Review on ASEAN transboundary haze pollution agreement 2002: Problems and solutions. *Journal of Humanities, Language, Culture, and Business*, 1(1), 153-161.
- GOODNOTES. (2020). *How GoodNotes Uses GoodNotes*. Goodnotes. <https://www.goodnotes.com/blog/how-goodnotes-uses-goodnotes>
- Gutner, T., & Heltberg, R. (2025, 2025/02/01/). Conceptualizing and evaluating how international organizations collaborate. *World Development*, 186, 106789. <https://doi.org/https://doi.org/10.1016/j.worlddev.2024.106789>
- Ha, M.-L. (2011). The role of regional institutions in sustainable development: a review of the Mekong River Commission's first 15 years. *Consilience*(5), 125-140.
- Handl, G. (2012). Declaration of the United Nations conference on the human environment (Stockholm Declaration), 1972 and the Rio Declaration on Environment and Development, 1992. *United Nations Audiovisual Library of International Law*, 11(6).
- Hernández, F. M. (2008). Analysis of the Espoo Convention as applied to mega projects: The case of Nord Stream. *Unpublished Masters, Lund University, Lund*.
- Howes, S., & Wyrwoll, P. (2012). Asia's wicked environmental problems.
- Hungary. (2022). *Questionnaire for the report of HUNGARY on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-04/Hungary_EIA.pdf
- Idrissi Gartoumi, K. (2024, 2024/12/01/). Five-Year Review of Blockchain in Construction Management: Scientometric and Thematic Analysis (2017-2023). *Automation in Construction*, 168, 105773. <https://doi.org/https://doi.org/10.1016/j.autcon.2024.105773>

- International Centre for Environmental Management, I. (2010). *MRC Strategic Environmental Assessment (SEA) of Hydropower on the Mekong Mainstream: Summary of the Final Report*.
- International Finance Corporation, I. (2021). Guidance Note 1 Assessment and Management of Environmental and Social Risks and Impacts. <https://www.ifc.org/content/dam/ifc/doc/2021/20210614-ifc-ps-guidance-note-1-en.pdf>
- Itasari, E., & Mangku, D. (2021, 06/27). Implementation of the ASEAN Agreement on Transboundary Haze Pollution in the Southeast Asia Region. *Jurnal Ilmiah Pendidikan Pancasila dan Kewarganegaraan*, 6, 149. <https://doi.org/10.17977/um019v6i1p149-154>
- Jarusombat, S. (2019). Institutional Arrangements to Manage Transboundary Environmental Problems. *Journal of Thai Ombudsman*, 10(2). <https://so04.tci-thaijo.org/index.php/ombudsman/article/view/167047>
- Jay, S., Jones, C., Slinn, P., & Wood, C. (2007). Environmental impact assessment: Retrospect and prospect. *Environmental Impact Assessment Review*, 27(4), 287-300.
- Jones, C. P., Armstrong-Moore, R., Penney, T. L., Cummins, S., Armitage, S., Adams, J., & White, M. (2022, 2022/12/01/). Adolescents' perspectives on soft drinks after the introduction of the UK Soft Drinks Industry Levy: A focus group study using reflexive thematic analysis. *Appetite*, 179, 106305. <https://doi.org/https://doi.org/10.1016/j.appet.2022.106305>
- Jones, D. S. (2006). ASEAN and transboundary haze pollution in Southeast Asia. *Asia Europe Journal*, 4(3), 431-446.
- Josimović, B., Cvjetić, A., & Furundžić, D. (2021). Strategic Environmental Assessment and the precautionary principle in the spatial planning of wind farms—European experience in Serbia. *Renewable and Sustainable Energy Reviews*, 136, 110459.
- Joslin, R., & Müller, R. (2016, 2016/08/01/). Identifying interesting project phenomena using philosophical and methodological triangulation. *International Journal of Project Management*, 34(6), 1043-1056. <https://doi.org/https://doi.org/10.1016/j.ijproman.2016.05.005>
- Juntursima, S., Panitchpakdi, J., Wongsodsai, A., Maharueankwan, B., Buangam, T., Phanwong, S., Buaklee, A., & Takam, J. (2023). การพัฒนาเครื่องมือและช่องทางการสื่อสารแบบดิจิทัลบนแพลตฟอร์มโมบายแอปพลิเคชันเพื่อการเฝ้าระวังผลกระทบทางสุขภาพโดยชุมชน: กรณีมลพิษข้ามพรมแดนจากโรงไฟฟ้าถ่านหินหงสาในสปป.ลาว.

- Kasetsart University, K. (2009). *EIA report on 500 Kv electricity transmission system project for the Hongsa Lignite Power Plant Project (Nan to Mae Moh)*. O. o. N. R. a. E. P. a. Planning. <https://eia.onep.go.th/eia/detail?id=3276>
- Kim, S. K., van Gevelt, T., Joosse, P., & Bennett, M. M. (2022). Transboundary air pollution and cross-border cooperation: Insights from marine vessel emissions regulations in Hong Kong and Shenzhen. *Sustainable Cities and Society*, 80, 103774.
- Koivurova, T., Masloboev, V., Petr etei, A., Nygaard, V., & Hossain, K. (2014). Transboundary EIA in the Barents region. *Nord. Environ. Law J*, 3, 45-62.
- Koivurova, T., & P l nen, I. (2010). Transboundary environmental impact assessment in the case of the Baltic Sea gas pipeline. *The International Journal of Marine and Coastal Law*, 25(2), 151-181.
- Koyano, M. (2008, 2008/12/01). The significance of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) in international environmental law: examining the implications of the Danube Delta case. *Impact Assessment and Project Appraisal*, 26(4), 299-314. <https://doi.org/10.3152/146155108X391600>
- Kumtrai, D. (2018). มลพิษ หมอก ค ัน ข ำม แดน อาเซียน กั บ การ แก่ไข ปัญหา ดัวย ข ้อบงกั บ ระดั บ ท ้องถั น ใต ย. *CMU Journal of Law and Social Sciences*, 11(1), 87-109.
- Larsen, S. V., Hansen, A. M., & Nielsen, H. N. (2018). The role of EIA and weak assessments of social impacts in conflicts over implementation of renewable energy policies. *Energy Policy*, 115, 43-53.
- Leekbhai, S., & Poboorn, C. (2018). TRANSBOUNDARY ENVIRONMENTAL IMPACT ASSESSMENT UNDER 1991 CONVENTION ON ENVIRONMENTAL IMPACT ASSESSMENT IN A TRANSBOUNDARY CONTEXT. *Ph.D. in Social Sciences Journal*, 8(1). <https://so05.tci-thaijo.org/index.php/phdssj/article/view/87246>
- Lithuania. (2022). *Questionnaire for the report of LITHUANIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-04/Lithuania_EIA.pdf
- Lu, C., Aritua, B., de Leijer, H., van Liere, R., & Lee, P. T.-W. (2023). Exploring causes of growth in China's inland waterway transport, 1978–2018: Documentary analysis approach. *Transport Policy*, 136, 47-58.
- Mack, N. (2005). *Qualitative research methods: A data collector's field guide*.

- Maharakham University, M. (2023). *Study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on Mekong Mainstream in 2022*. Office of the National Water Resources. <https://tnmcstudy.onwr.go.th/wp-content/uploads/2024/08/2566/รายงานฉบับสมบูรณ์.pdf>
- Malta. (2022). *Questionnaire for the report of MALTA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Malta_EIA.pdf
- Marks, D., & Miller, M. A. (2022). A transboundary political ecology of air pollution: Slow violence on Thailand's margins. *Environmental Policy and Governance*, 32(4), 305-319.
- Marsden, S. (2011, 2011/11/01/). Assessment of transboundary environmental effects in the Pearl River Delta Region: Is there a role for strategic environmental assessment? *Environmental Impact Assessment Review*, 31(6), 593-601. <https://doi.org/https://doi.org/10.1016/j.eiar.2010.03.010>
- Mekong River Commission, M. (1995). *Agreement on the cooperation for the sustainable development of the Mekong River Basin*. Mekong River Commission Secretariat.
- Mekong River Commission, M. (2001). Procedures for data and information exchange and sharing. *Mekong River Commission Secretariat: Vientiane, Laos*.
- Mekong River Commission, M. (2005). *Guidelines on the Implementation of the Procedures for Notification, Prior Consultation, and Agreement (PNPCA)* <https://www.mrcmekong.org>
- Mekong River Commission, M. (2016). *Procedures for notification, prior consultation, and agreement (PNPCA)* <https://www.mrcmekong.org>
- Mekong River Commission, M. (2019). *MRC Indicator Framework*. <https://www.mrcmekong.org/wp-content/uploads/2024/08/Mekong-River-Basin-Indicator-Framework.pdf>
- Mekong River Commission, M. (2023). *Guidelines for transboundary environmental impact assessment in the Lower Mekong River Basin* <https://doi.org/10.52107/mrc.aqrsbk>

- Ministry of Foreign Affairs, K. o. T. (2023). *Prime Minister of Thailand hosted a trilateral consultation with leaders from Lao PDR and Myanmar to strengthen cooperation and tackle transboundary haze pollution among the three countries*. Ministry of Foreign Affairs, Kingdom of Thailand. <https://www.mfa.go.th/en/content/trilateralconsultation070423-2?page=5d5bd3da15e39c306002aaf9&menu=5d5bd3cb15e39c306002a9b0>
- Ministry of the Environment, F., Ministry of the Environment, S., & Ministry of Housing, S. P. a. t. E., the Netherlands. (2003). *Guidance on the practical application of the Espoo Convention*. Finnish Environment Institute (SYKE).
- Mirumachi, N., & Nakayama, M. (2007). Improving methodologies for transboundary impact assessment in transboundary watercourses: Navigation channel improvement project of the Lancang-Mekong River from China-Myanmar boundary marker 243 to Ban Houei Sai of Laos. *Water Resources Development*, 23(3), 411-425.
- Moldova, R. o. (2022). *Questionnaire for the report of the REPUBLIC of MOLDOVA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-04/Moldova_EIA_eng.pdf
- Montenegro. (2022). *Questionnaire for the report of Montenegro on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Montenegro_EIA.pdf
- Moran, J., NaSuwan, C., & Poocharoen, O.-O. (2019). The haze problem in Northern Thailand and policies to combat it: a review. *Environmental Science & Policy*, 97, 1-15.
- MRC. (2020). Understanding the 1995 Mekong Agreement and the five MRC Procedures: a handbook. *Mekong River Commission*.
- MRC. (2023). MRC Annual Report 2022. <https://doi.org/10.52107/mrc.b8uuu5>
- Muhammad, F. (2022). Environmental agreement under the non-interference principle: the case of ASEAN agreement on transboundary haze pollution. *International Environmental Agreements: Politics, Law and Economics*, 22(1), 139-155.
- Namey, E., Guest, G., Thairu, L., & Johnson, L. (2008). Data reduction techniques for large qualitative data sets. In (pp. 137-162).
- Naweed, A., Bowditch, L., Trigg, J., & Unsworth, C. (2022, 2022/04/01/). Injury by design: A thematic networks and system dynamics analysis of work-related musculoskeletal disorders in tram drivers. *Applied Ergonomics*, 100, 103644. <https://doi.org/https://doi.org/10.1016/j.apergo.2021.103644>

- Nazeer, N., & Furuoka, F. (2017). OVERVIEW OF ASEAN ENVIRONMENT, TRANSBOUNDARY HAZE POLLUTION AGREEMENT AND PUBLIC HEALTH. *International Journal of Asia-Pacific Studies*, 13(1).
- Netherlands. (2000). *Bilateral and multilateral cooperation in the framework of the Convention on Environmental Impact Assessment in a Transboundary Context*. https://digitallibrary.un.org/record/414934/files/%5BE_ECE_%5DMP.EIA_WG.1_2000_6-EN.pdf
https://digitallibrary.un.org/record/414934/files/%5BE_ECE_%5DMP.EIA_WG.1_2000_6-FR.pdf
https://digitallibrary.un.org/record/414934/files/%5BE_ECE_%5DMP.EIA_WG.1_2000_6-RU.pdf
- Nichols, A., Maynard, V., Goodman, B., & Richardson, J. (2009, Aug 24). Health, Climate Change and Sustainability: A systematic Review and Thematic Analysis of the Literature. *Environ Health Insights*, 3, 63-88. <https://doi.org/10.4137/ehi.s3003>
- Nwanekezie, K., Noble, B., & Poelzer, G. (2022). Strategic assessment for energy transitions: A case study of renewable energy development in Saskatchewan, Canada. *Environmental Impact Assessment Review*, 92, 106688.
- Office of Natural Resources and Environmental Policy and Planning, O. (2021). การประเมินผลกระทบสิ่งแวดล้อม. Office of Natural Resources and Environmental Policy and Planning, ONEP. <https://www.onep.go.th/การประเมินผลกระทบสิ่งแวดล้อม/>
- Office of Natural Resources and Environmental Policy and Planning, O., & PTT Public Company Limited, P. (2018). *Environmental Impact Assessment (EIA) Guidelines for Business Project Development in ASEAN Economic Community (AEC)*. http://eiadev.onep.go.th/Show_Detail.aspx?DetailId=212
- Office of the National Water Resources, O. (2024). *The study of Transboundary Environmental Monitoring and Impact Assessment of Hydropower Projects on the Mekong mainstream*. Office of the National Water Resources,. <https://tnmcstudy.onwr.go.th>
- Öjendal, J., Mathur, V., & Sithirith, M. (2002). Environmental governance in the Mekong. Hydropower site selection processes in the Se Son and Sre Pok basins.
- Okowa, P. (2000). *State responsibility for transboundary air pollution in international law*. Oxford University Press.
- Organization, W. H. (2022). *World mental health report: Transforming mental health for all*. World Health Organization.

- Panbautoom, K. (2024). *Transboundary environmental impact: new challenge in borderless world*. <https://www.onep.go.th/ผลกระทบสิ่งแวดล้อมข้าม/>
- Partidário, M. R., Paddon, M., Eggenberger, M., Chau, D. M., & Van Duyen, N. (2008). Linking strategic environmental assessment (SEA) and city development strategy in Vietnam. *Impact Assessment and Project Appraisal*, 26(3), 219-227.
- Paulo, S. (2014). International cooperation and development: A conceptual overview. *German Development Institute/Deutsches Institut für Entwicklungspolitik Discussion Paper*, 13.
- Peterson, K., & Lahtvee, V. (2007). The Russian Federation and the Espoo Convention: Current Situation and Future Challenges. *Estonian Institute for Sustainable Development/Stockholm Environment Institute Tallinn Centre, SEI Tallinn*.
- Phenrat, T., Trivitayanurak, W., Adum, N., Piaowan, K., Lohitnavy, M., Maneechuket, W., Pomkrasan, P., & Khadtham, W. (2023). การ จัด ทำ แผนที่ ความ เสี่ยง การ ติดตาม การ ป น เปื้อน และ ประเมิน ผล กระทบ ต่อ สุขภาพ และ การ ดำรง ชีวิต ของ ชุมชน จาก มลพิษ ทาง อากาศ จาก โรง ไฟฟ้า ถ่านหิน ตก สะสม ใน สิ่งแวดล้อม.
- Pinho, P., McCallum, S., & Cruz, S. S. (2010). A critical appraisal of EIA screening practice in EU Member States. *Impact Assessment and Project Appraisal*, 28(2), 91-107.
- Pinkau, A., & Schiele, K. S. (2021, 2021/08/01/). Strategic Environmental Assessment in marine spatial planning of the North Sea and the Baltic Sea – An implementation tool for an ecosystem-based approach? *Marine Policy*, 130, 104547. <https://doi.org/https://doi.org/10.1016/j.marpol.2021.104547>
- Plengsaeng, B., Wehn, U., & Van Der Zaag, P. (2014). Data-sharing bottlenecks in transboundary integrated water resources management: a case study of the Mekong River Commission's procedures for data sharing in the Thai context. *Water international*, 39(7), 933-951.
- Poland, R. o. (2022). *Questionnaire for the report of the REPUBLIC OF POLAND on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Poland_EIA.pdf
- Pollution Control Department, P. (2020). *Thailand State of Pollution Reprot 2019*. <https://www.pcd.go.th/publication/8013/>
- Pollution Control Department, P. (2024). *Thailand State of Pollution Reprot 2023*. <https://www.pcd.go.th/publication/32171/>

- Purnama, D. (2004). Review of transboundary environmental impact assessment: a case study from the Timor Gap. *Impact Assessment and Project Appraisal*, 22(1), 17-35.
- Purwendah, E. K., & Mangku, D. G. S. (2018). The Implementation Of Agreement On Transboundary Haze Pollution In The Southeast Asia Region For Asean Member Countries. *International Journal of Business, Economics and Law*, 17(4), 8-14.
- Qadri, T. (2001). Fire, smoke, and haze: The ASEAN response strategy. (*No Title*).
- Romania. (2022). *Questionnaire for the report of ROMANIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019 – 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-04/Romania_EIA.pdf
- Sadler, B. (1996). *Strategic environmental assessment: status, challenges and future directions*. Ministry of Housing, Spatial Planning and the Environment of the Netherlands.
- Sadler, B., & McCabe, M. (2002, 2002). Environmental impact assessment training resource manual. http://digitallibrary.un.org/record/574137/files/EIA_Training_Resource_Manual.pdf
- Saisoonthorn, M. (2016). กระทบการแจ้ง การ ปรึกษาหารือ ล่วงหน้า และ ข้อตกลง (PNPCA) ภายใต้ ข้อตกลงแม่น้ำโขง พ.ศ. 2538 ตามหลักการของอนุสัญญาการประเมินผลกระทบทางสิ่งแวดล้อมในบริบทข้ามเขตแดน ค.ศ. 1991: ศึกษากรณี เชียงใหม่ เชียงราย และ นครราชสีมา.
- Sano, D., Matsumoto, I., Urago, A., Takahashi, Y., & Genjida, N. (2016). Strengthening EIA in Asia. *Institute for Global Environmental Strategies*. https://www.iges.or.jp/en/publication_documents/pub/discussionpaper/en/5474/5474-Strengthening_EIA_in_Asia_2016_IGES.pdf
- Schrage, W., & Bonvoisin, N. (2008). Transboundary impact assessment: frameworks, experiences and challenges. *Impact Assessment and Project Appraisal*, 26(4), 234-238.
- Sirimongkolertkun, N. (2018). Assessment of long-range transport contribution on haze episode in Northern Thailand, Laos and Myanmar. IOP Conference Series: Earth and Environmental Science,
- Slovenia. (2022). *Questionnaire for the report of SLOVENIA on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019– 2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-06/Slovenia_EIA_0.pdf

- Somporn, P., Kwanpracha, C., Pakorn, L., & Thanyaporn, S. (2023). *The Development of Community-led Health Impact Monitoring, Nan Province Thailand: A Case of transboundary Pollution from Hongsa Power Plant, Lao PDR.*
- Soukhaphon, A., Baird, I. G., & Hogan, Z. S. (2021). The impacts of hydropower dams in the Mekong River Basin: A review. *Water*, 13(3), 265.
- Spain. (2022). *Questionnaire for the report of SPAIN on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021* U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-05/Spain_EIA.pdf
- SRIRATTANA, S., & PIAOWAN, K. (2020). SO 2 DISPERSION MODELING EMITTED FROM HONGSA COAL-FIRED POWER PLANT TRANSBOUNDARY TO NAN PROVINCE, THAILAND. *Geographia Technica*, 15(1).
- Subekti, R. (2020). Effectiveness of Transboundary Haze Pollution in Handling of Smoke Haze Cases in Southeast Asia. *International Journal of Business, Economics, and Law*, 23(1), 43-48.
- Swain, J. (2018). A hybrid approach to thematic analysis in qualitative research: Using a practical example. *Sage research methods*.
- Swangjang, K. (2018). Comparative review of EIA in the Association of Southeast Asian Nations. *Environmental Impact Assessment Review*, 72, 33-42.
- Switzerland. (2022). *Questionnaire for the report of SWITZERLAND on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021*. U. N. E. C. f. Europe. https://unece.org/sites/default/files/2022-07/Switzerland_EIA_EN.pdf
- Tan, A. K.-J. (2005). The ASEAN agreement on transboundary haze pollution: Prospects for compliance and effectiveness in post-Suharto Indonesia. *NYU Env'tl. LJ*, 13, 647.
- The Forest Protection and Fire Control Office, D. o. N. P., Wildlife and Plant Conservation. (2025). *Fine-Resolution Forecast Products of Fire Danger Rating*. Department of National Parks, Wildlife and Plant Conservation Retrieved 9 March from <http://www2.dnp.go.th/gis/FDRS/FDRS.php>
- Uitto, J. I., & Duda, A. M. (2002). Management of transboundary water resources: lessons from international cooperation for conflict prevention. *Geographical Journal*, 168(4), 365-378.

Ukwe, C., & Ibe, C. (2010). A regional collaborative approach in transboundary pollution management in the guinea current region of western Africa. *Ocean & coastal management*, 53(9), 493-506.

Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), (1991). <https://unece.org/environment-policy/environmental-impact-assessment>

UNECE. (1998). Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention). <https://unece.org/environment-policy/public-participation/aarhus-convention>

UNECE. (2006a). *Guidance on public participation in environmental impact assessment in a transboundary context* <https://unece.org/environment-policy/environmental-impact-assessment>

UNECE. (2006b). *Guidance on the practical application of the Espoo Convention* <https://unece.org/environment-policy/environmental-impact-assessment>

UNECE. (2008). *CASE STUDY FACT SHEET #4 Chancy-Pougny Hydropower Station, on the border between France and Switzerland*. U. N. E. C. f. Europe. https://unece.org/DAM/env/eia/documents/factsheet/Factsheet4_Hydropower_in_France_Switzerland_Aug08.pdf

UNECE. (2009a). *Guidance on notification according to the Espoo Convention* <https://unece.org/environment-policy/environmental-impact-assessment>

UNECE. (2009b). What UNECE does for you. https://unece.org/DAM/env/eia/documents/ImplementationCommittee/0923749_Espoo_ENG.pdf

UNECE. (2014a). UNECE at a glance - Espoo Convention. https://unece.org/DAM/env/eia/Publications/2014/Flyer-Espoo_Convention-A5-Low_resolution_for_information.pdf

UNECE. (2014b). *UNECE Espoo Convention on Environmental Impact Assessment becomes a global instrument*. United Nations Economic Commission for Europe (UNECE). Retrieved 12 April from <https://unece.org/environment/press/unece-espoo-convention-environmental-impact-assessment-becomes-global-instrument>

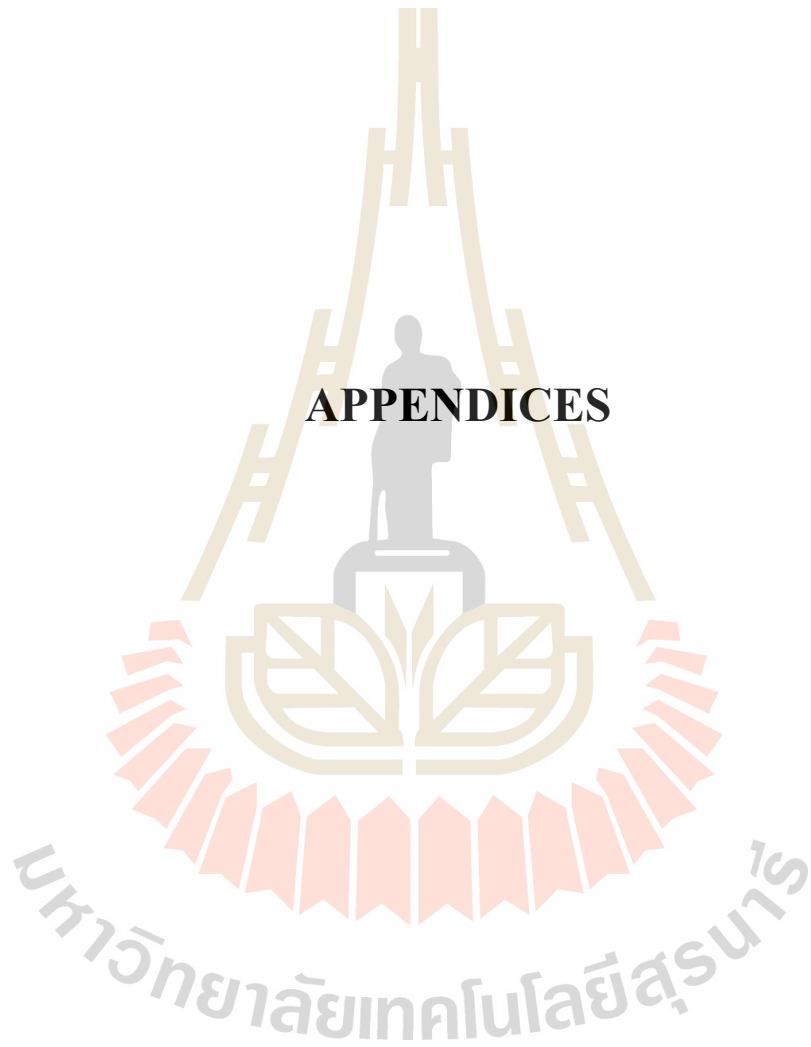
UNECE. (2014c). *The UNECE Protocol on Strategic Environmental Assessment now a global instrument*. United Nations Economic Commission for Europe, UNECE. https://unece.org/environment/press/unece-protocol-strategic-environmental-assessment-now-global-instrument?utm_source=chatgpt.com

- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), (2017a). <https://unece.org/environment-policy/environmental-impact-assessment>
- UNECE. (2017b). UNECE Espoo Convention and Sustainable Development Goals. https://unece.org/DAM/env/documents/2017/EIA/MOP7/SDGs_and_Espoo_Convention_postcard_2017.pdf
- UNECE. (2020). *Structure and functions of the Implementation Committee and procedures for review of compliance*. U. United Nations Economic Commission for Europe. <https://unece.org/sites/default/files/2023-04/Implementation%20Committee%20structure%20functions%20procedures%20rules.e%202020%20%281%29.pdf>
- UNECE. (2022a). *Findings and recommendations on compliance by Serbia with its obligations under the Convention with respect to several mining-related activities in Karamanica, Popovica and Podvirovi and the Grot mine* U. United Nations Economic Commission for Europe. https://unece.org/sites/default/files/2022-08/ece_mp.eia_ic_2022_8_e.pdf
- UNECE. (2022b). *Reporting instructions*. United Nations Economic Commission for Europe, UNECE. https://unece.org/environment-policy/environmental-assessment/review-implementation-national-reporting?_cf_chl_tk=InmyRqcZ_SoONXz_.9.mgKcSEfjZd1hMOSvzsV0TVfE-1724925586-0.0.1.1-5610
- UNECE. (2023a). *Findings and recommendations on compliance by Albania with its obligations under the Convention and the Protocol in respect of the planned construction of several small hydropower plants on the Cijevna River*. U. United Nations Economic Commission for Europe. https://unece.org/sites/default/files/2023-06/ece_mp.eia_ic_2023_9.e.pdf
- UNECE. (2023b). *Findings and recommendations on compliance by Bosnia and Herzegovina with its obligations under the Convention and the Protocol with respect to the construction of Buk Bijela hydropower plant on the Drina River*. U. United Nations Economic Commission for Europe. https://unece.org/sites/default/files/2023-03/ece_mp.eia_ic_2023_5_e.pdf
- UNECE. (2023c). *Findings and recommendations on compliance by Bulgaria with its obligations under the Convention with respect to the lifetime extension of units 5 and 6 of Kozloduy nuclear power plant*. U. United Nations Economic Commission for Europe. https://unece.org/sites/default/files/2023-03/ece_mp.eia_ic_2023_6_e.pdf

- UNECE. (2023d). *Findings and recommendations regarding compliance by Belgium with its obligations under the Convention in respect of the lifetime extension of unit 1 of Tihange nuclear power plant*. U. United Nations Economic Commission for Europe. https://unece.org/sites/default/files/2023-06/ece_mp.eia_ic_2023_10.e.pdf
- UNECE. (2023e). *Findings and recommendations regarding compliance by Czechia with its obligations under the Convention in respect of the lifetime extension of four reactors of Dukovany nuclear power plant*. U. United Nations Economic Commission for Europe. https://unece.org/sites/default/files/2023-06/ece_mp.eia_ic_2023_11.e.pdf
- UNECE. (n.d.). *The blank questionnaires for 2019-2021 (ECE/MP.EIA/WG.2/2021/3)*. United Nations Economic Commission for Europe. https://unece.org/environment-policy/environmental-assessment/review-implementation-national-reporting?_cf_chl_tk=InmyRqcZ_SoONXz_.9.mgKcSEfjZd1hMOSvzsV0TVfE-1724925586-0.0.1.1-5610
- UNECE: Working group on EIA and SEA. (2022). *Draft seventh review of the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context as noted by the secretariat*.
- United Nations. (1972). Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration). <https://www.un.org/en/conferences/environment/stockholm1972>
- United Nations, T. C. (2025). *Status of Treaties*. United Nations, Treaty Collection. https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-4&chapter=27&clang=_en
- Walker, H., Pope, J., Sinclair, J. A., Bond, A., & Diduck, A. (2023). Qualitative Methods for the Next Generation of Impact Assessment.
- Weston, J. (2000). EIA, decision-making theory and screening and scoping in UK practice. *Journal of environmental planning and management*, 43(2), 185-203.
- Wiriya, W., Chantara, S., Saipunkaew, W., & Yabueng, N. (2023). การใช้ดัชนี บ่งชี้ทางเคมี และ ชีวภาพ เพื่อ ติดตาม ตรวจสอบ มลพิษ ทาง อากาศ และ การ พัฒนา เครื่องมือ สำหรับ ชุมชน ใน การ เฝ้า ระวัง คุณภาพ อากาศ อำเภอ เกลิมพระเกียรติ จังหวัด น่าน.
- Wright, L. (2000). Towards an empirical test of the iceberg model. *Hum. Decis. Mak. Man. Control. EAM2000 EUR*, 19599, 145-152.

- Xu, W., & Zammit, K. (2020). Applying Thematic Analysis to Education: A Hybrid Approach to Interpreting Data in Practitioner Research. *International Journal of Qualitative Methods*, 19, 1609406920918810. <https://doi.org/10.1177/1609406920918810>
- Yaacob, W. F. W., Noor, N. S. M., Bakar, N. I. C. A., Zin, N. A. M., & Taib, F. (2016). The impact of haze on the adolescent's acute respiratory disease: A single institution study. *Journal of Acute Disease*, 5(3), 227-231.
- Yang, Y., Xu, H., Wang, J., Liu, T., & Wang, H. (2021). Integrating climate change factor into strategic environmental assessment in China. *Environmental Impact Assessment Review*, 89, 106585.
- Yong, M. L., & Gillespie, J. (2022, 2022/11/01/). Towards relational geometries of public participation and hydropower governance in the Lower Mekong River Basin. *Political Geography*, 99, 102773. <https://doi.org/https://doi.org/10.1016/j.polgeo.2022.102773>
- Yu, H., & Chen, S. (2022). PNPCA Consultation and Improvement for Hydro-power Development on Mekong River. E3S Web of Conferences,
- Zhao, J., Guo, L., Lin, J., Dou, R., Huang, Y., & Bao, Y. (2021). Analysis on the Transboundary Impact Assessment System and Practice of Hydropower Development on the Main Mekong River. IOP Conference Series: Earth and Environmental Science,
- Ziv, G., Baran, E., Nam, S., Rodríguez-Iturbe, I., & Levin, S. A. (2012). Trading-off fish biodiversity, food security, and hydropower in the Mekong River Basin. *Proceedings of the National Academy of Sciences*, 109(15), 5609-5614.

APPENDICES



APPENDIX A

The status of ratification of the Espoo Convention

The status of ratification of the Espoo Convention, which lists the countries that have signed, ratified, or acceded to the Convention, along with relevant dates. Countries highlighted in green represent those selected for this study as selected experiences. These Parties reported and completed their implementation and practical experiences through the provided questionnaire templates by UNECE.

4. CONVENTION ON ENVIRONMENTAL IMPACT ASSESSMENT IN A TRANSBOUNDARY CONTEXT

Espoo, Finland, 25 February 1991

ENTRY INTO FORCE: 10 September 1997, in accordance with article 18(1).
REGISTRATION: 10 September 1997, No. 34028.
STATUS: Signatories: 30. Parties: 45.¹
TEXT: United Nations, *Treaty Series*, vol. 1989, p. 309. C.N.443.2014.TREATIES-XXVII.4 of 11 August 2014 (Proposal of Corrections to the original text of the Convention (English, French and Russian texts) and to the certified true copies) and C.N.737.2014.TREATIES-XXVII.4 of 17 November 2014 (Corrections).

Note: The Convention was adopted by the Senior Advisers to ECE Governments on Environmental and Water Problems of the Economic Commission for Europe at their fourth session held in Espoo, Finland, from 25 February to 1 March 1991. The Convention was open for signature at Espoo, Finland, during the said period and thereafter at the United Nations Headquarters in New York until 2 September 1991.

Participant	Signature, Succession to signature(d)	Ratification, Acceptance(A), Approval(AA), Accession(a)	Participant	Signature, Succession to signature(d)	Ratification, Acceptance(A), Approval(AA), Accession(a)
Albania	26 Feb 1991	4 Oct 1991	Latvia	26 Feb 1991	31 Aug 1998 a
Armenia	26 Feb 1991	21 Feb 1997 a	Liechtenstein	26 Feb 1991	9 Jul 1998 a
Austria	26 Feb 1991	27 Jul 1994	Lithuania	26 Feb 1991	11 Jan 2001 a
Azerbaijan	26 Feb 1991	25 Mar 1999 a	Luxembourg	26 Feb 1991	29 Aug 1995
Belarus	26 Feb 1991	10 Nov 2005 A	Malta	26 Feb 1991	20 Oct 2010 a
Belgium	26 Feb 1991	2 Jul 1999	Montenegro	26 Feb 1991	9 Jul 2009 a
Bosnia and Herzegovina	26 Feb 1991	14 Dec 2009 a	Netherlands (Kingdom of the) ⁵	25 Feb 1991	28 Feb 1995 A
Bulgaria	26 Feb 1991	12 May 1995	North Macedonia	26 Feb 1991	31 Aug 1999 a
Canada	26 Feb 1991	13 May 1998	Norway	25 Feb 1991	23 Jun 1993
Croatia	26 Feb 1991	8 Jul 1996 a	Poland	26 Feb 1991	12 Jun 1997
Cyprus	26 Feb 1991	20 Jul 2000 a	Portugal	26 Feb 1991	6 Apr 2000
Czech Republic ²	30 Sep 1993 d	26 Feb 2001	Republic of Moldova	26 Feb 1991	4 Jan 1994 a
Denmark ³	26 Feb 1991	14 Mar 1997 AA	Romania	26 Feb 1991	29 Mar 2001
Estonia	26 Feb 1991	25 Apr 2001 a	Russian Federation	26 Feb 1991	6 Jun 1991
European Union	26 Feb 1991	24 Jun 1997 AA	Serbia	26 Feb 1991	18 Dec 2007 a
Finland	26 Feb 1991	10 Aug 1995 A	Slovakia ²	28 May 1993 d	19 Nov 1999
France ⁴	26 Feb 1991	15 Jun 2001 AA	Slovenia	26 Feb 1991	5 Aug 1998 a
Germany	26 Feb 1991	8 Aug 2002	Spain	26 Feb 1991	10 Sep 1992
Greece	26 Feb 1991	24 Feb 1998	Sweden	26 Feb 1991	24 Jan 1992
Hungary	26 Feb 1991	11 Jul 1997	Switzerland	26 Feb 1991	16 Sep 1996 a
Iceland	26 Feb 1991	26 Feb 1991	Ukraine	26 Feb 1991	20 Jul 1999
Ireland	27 Feb 1991	25 Jul 2002	United Kingdom of Great Britain and Northern Ireland ⁵	26 Feb 1991	10 Oct 1997
Italy	26 Feb 1991	19 Jan 1995	United States of America	26 Feb 1991	26 Feb 1991
Kazakhstan	26 Feb 1991	11 Jan 2001 a			
Kyrgyzstan	26 Feb 1991	1 May 2001 a			

Figure A The status of ratification of the Espoo Convention

(United Nations, 2025)

APPENDIX B

Implementation approach of the Mekong River Basin indicator framework (MRB-IF)

The Mekong River Basin Indicator Framework (MRB-IF) was developed in collaboration with Member Countries, with key purposes include: (1) State of the Basin Reporting: Offering comprehensive insights into the basin's status; (2) Development Assessments: Evaluating plans, scenarios, and projects concerning water resource conservation, utilization, and management; (3) Data and Information Sharing: Facilitating MRC activities through improved data exchange, aligned with the MRC Strategic Plan; and (4) Strengthening National Data Collection: Promoting decentralization and enhancing primary data collection efforts at the national level.

Moreover, MRB-IF establishing a working agreement on its structure, including five dimensions, 15 Strategic Indicators, 53 Assessment Indicators, and 182 Monitoring Parameters, the framework is designed to evaluate the implementation of the 1995 Mekong Agreement effectively. According to Table 2 of Mekong River Commission (2019, p. 12) or **Figure B** in this section, the definitions of indicators and parameters are presents in below:

Table 2: Assessment Indicators and related Monitoring Parameters

Strategic Indicators	Assessment Indicators	Monitoring Parameters
Social Dimension		
1. Living Conditions and wellbeing	1. Food Security	(i) Adequacy of dietary energy supply; (ii) Income per person; (iii) Prevalence of undernourishment; (iv) Prevalence of infant malnutrition
	2. Water Security	(i) Adequacy of domestic water supply; (ii) Sufficiency of water for farming
	3. Water-related Health Security	(i) Access to safe water supplies; (ii) Prevalence of malnutrition; (iii) Access to sanitation; (iv) Incidence of water-borne disease
2. Livelihoods and employment in LMB water-related sectors	4. Access to electricity	(i) Urban household electrification rate; (ii) Rural household electrification rate
	5. Employment in LMB water-related sectors	(i) Proportion of working age population employed in LMB water-related sectors
	6. Economic Security	(i) Sufficiency of household income; (ii) Sufficiency of household assets
3. Overall social conditions	7. Gender equality in employment and economic engagement	(i) Female-male ratio of people employed in LMB water-related sectors; (ii) Gender equality in education; (iii) Gender equality in ownership of land
	-	-
Environment Dimension		
4. Water flow conditions	8. Compliance of dry season flows with the PMFM	(i) Daily dry season water levels; (ii) discharge relative to 1:5, 1:10 and 1:20 ARI flows (at PMFM stations)
	9. Compliance of flood season peak flows with the PMFM	(i) Daily flood season water levels; (ii) discharge relative to 1:2, 1:10 and 1:20 ARIs (at PMFM stations)
	10. Compliance of Tonle Sap reverse flows with the PMFM	(i) Accumulated reverse flow volumes (at relevant PMFM stations)
	11. Change in the timing of onset of wet season flows	(i) Daily discharge; (ii) Date
5. Water quality and sediment conditions	12. Ecological health, and water quality compliance with the PWQ	(i) DO; (ii) pH; (iii) COD; (iv) BOD; (v) NH ₃ ; (vi) NO ₂ -3-N; (vii) TP; (viii) TN; (ix) TSS (x) Electrical Conductivity; (xi) Heavy Metals; (xii) Faecal coliforms; (xiii) Pesticides; (xiv) Oil and grease; (xv) Phenol; (xvi) Diatoms; (xvii) Benthic macroinvertebrates; (xviii) Littoral macroinvertebrates; (xix) Zooplankton
	13. Changes in sediment transport	(i) Suspended sediment load; (ii) Bed load; (iii) Grain-size distribution of suspended sediments; (iv) Grain-size distribution of bed load
	14. Extent of salinity intrusion in the delta	(i) Area of the delta affected by salinity >1 mg/l; (ii) Area of the delta affected by salinity >4 mg/l
6. Status of environmental assets	15. Extent of wetland area	(i) Flooded forest area; (ii) Inundated grasslands area; (iii) Marshes and swamps area; (iv) Inundated rice fields area; (v) Mangrove area; (vi) Area of water bodies; (vii) Aquaculture area
	16. Condition of riverine, estuarine and coastal habitats	(i) Area of sandy habitats; (ii) Area of rocky habitats; (iii) Depth of deep pools; (iv) Area of vegetated riparian habitat; (v) Mangrove area; (vi) Area of riverbank erosion; (vii) Area of coastal erosion
	17. Condition and status of fisheries and other aquatic resources	(i) Fish abundance; (ii) Fishing effort; (iii) Fish size; (iv) Fish diversity; (v) OAA/P abundance; (vi) OAA/P harvest effort; (vii) OAA/P diversity; (viii) Diversity and abundance of introduced species; (ix) Diversity and abundance of other water-dependent biodiversity
	18. Condition and status of ecologically significant areas	(i) Extent of natural land cover in ecologically significant areas; (ii) Protection status of ecologically significant areas; (iii) Forested land area (natural & plantation)
7. Overall environment conditions	-	-
Economic Dimension		
8. Economic performance of LMB water-related sectors	19. Economic value of agriculture	(i) Irrigated agricultural production; (ii) recession rice production; (iii) rain-fed cultivation production; (iv) Riverbank garden production; (v) Agricultural prices
	20. Economic value of hydropower	(i) Hydropower production for domestic consumption; (ii) Hydropower production for export; (iii) Hydropower prices
	21. Economic value of navigation	(i) Volume of cargo transport; (ii) Passenger transport numbers; (iii) Transport prices
	22. Economic value of sand mining	(i) Sand mining production (ii) Sand mining prices
	23. Economic value of wetlands	(i) Flooded forest ecosystem services production; (ii) Inundated grasslands ecosystem services production; (iii) Marshes and swamps ecosystem services production; (iv) Mangrove ecosystem services production; (v) Water bodies ecosystem services production; (vi) Wetland ecosystem service prices
	24. Economic value of capture fisheries	(i) Fisheries production from rivers and major flood zones; (ii) Fisheries production from rain-fed zones; (iii) Fisheries production from large water bodies including reservoirs; (iv) Capture fisheries prices
	25. Economic value of aquaculture	(i) Aquaculture production; (ii) Aquaculture prices
	26. Economic value of forestry	(i) Forestry production (excluding flooded forests); (ii) Forestry prices
	27. Economic value of tourism and recreation	(i) Tourism and recreation revenue
	28. Economic cost of river bank and coastal erosion	(i) River bank erosion losses; (ii) Coastal erosion losses
	29. Economic cost of flood	(i) Annual cost of flood damages
30. Economic cost of drought	(i) Annual cost of drought damages	

Figure B The definitions of indicators and parameters under the Mekong River Basin Indicator Framework (MRB-IF) (Based on Mekong River Commission, 2019, p. 12)

9. Contribution to basin economy	31. Contribution of LMB water-related sectors to basin, national and regional GDP 32. Contribution to food grain supply 33. Contribution to protein supply 34. Contribution to power supply	(i) Proportion of basin GDP from LMB water-related sectors; (ii) Proportion of national GDP from LMB water-related sectors; (iii) Proportion of regional GDP from LMB water-related sectors (i) Proportion of basin food grain demand met from basin resources; (ii) Proportion of national food grain demand met from basin resources; (iii) Proportion of regional food grain demand met from basin resources (i) Proportion of basin protein demand met from basin resources; (ii) Proportion of national protein demand met from basin resources; (iii) Proportion of regional protein demand met from basin resources (i) Proportion of basin power demand met from Basin hydroelectric resources; (ii) Proportion of national power demand met from Basin hydroelectric resources; (iii) Proportion of regional power demand met from Basin hydroelectric resources
Climate Change Dimension		
10. Greenhouse gas emissions	35. Greenhouse gas emissions from LMB water-related sectors 36. Relative contribution to global emissions	(i) GHG emissions from energy; (ii) GHG emissions from agriculture; (iii) GHG emissions from other land use, land use change and forestry; (iv) Reduced GHG emissions from energy production due to hydropower (i) Emissions of CO ₂ ; (ii) Emissions of CH ₄ ; (iii) Emissions of N ₂ O
11. Climate change trends and extremes	37. Changes in tropical storm frequency and intensity, and storm surge risk 38. Changes in temperatures 39. Changes in precipitation 40. Extent and severity of flooding 41. Extent and severity of droughts	(i) No. and wind strength of severe tropical storms; (ii) No. and wind strength of tropical storms; (iii) No. and wind strength of typhoons; (iv) Sea-level rise (i) Daily maximum temperature; (ii) Daily minimum temperature; (iii) Number of hot days; (iv) Number of cold nights; (v) Number of cold days; (vi) Number of warm nights (i) Daily total precipitation; (ii) 1-day maximum precipitation; (iii) 5-day maximum precipitation; (iv) Number of consecutive wet days; (v) Number of consecutive dry days (i) Annual maximum flooded area; (ii) Annual area of flooded forest; (iii) Average flood depth; (iv) Average flood duration; (v) Population affected by flood; (vi) Timing of onset of flood; (vii) Timing of offset of flood; (viii) Annual maximum flooded area at Tonle Sap (i) Annual area of meteorological drought (ii) Annual area of hydrological drought; (iii) Annual area of agricultural drought; (iv) Population affected by drought; (v) Timing of onset of drought; (vi) Timing of offset of drought; (vii) Annual drought severity at Tonle Sap
12. Adaptation to climate change	42. Institutional response to the effects of climate change 43. Flood protection measures 44. Drought protection measures 45. Vulnerability to floods, droughts and storms	(i) Policies and strategies for climate change response; (ii) Budget for climate change response; (iii) Number of awareness-raising activities; (iv) Access to climate finance (i) Area of urban land protected by embankments/levees; (ii) Area of agricultural land protected by embankments (i) Proportion of irrigable land that is irrigated; (ii) Volume of available water storage (i) Exposure (impact zone); (ii) Sensitivity (damage/losses); (iii) Adaptive capacity (income/poverty); (iv) Disaster risk management planning at national and local level
Cooperation Dimension		
13. Equity of benefits derived from the Mekong River system	46. Overall social benefits derived in each country's part of the basin 47. Overall environment benefits derived in each country's part of the basin 48. Aggregate economic benefits derived from each water-related sector in each country's part of the basin	-
14. Benefits derived from cooperation	49. Joint efforts on projects of basin-wide significance and with potential trans-boundary impacts 50. Extent of knowledge sharing activities 51. Partnerships between the MRC and other parties 52. Proportion of benefits derived from cooperation to total net economic value of all LMB water-related sectors	(i) Quantity of projects of basin-wide significance; (ii) Value of projects of basin-wide significance; (iii) Quantity of trans-boundary projects notified; (iv) Value of trans-boundary projects notified (i) Number of events (symposia; fora; training) held; (ii) Number of joint studies and assessments; (iii) Number of information products disseminated; (iv) Number of data downloads (i) Number of partnership and cooperation agreements in place; (ii) Number of joint projects with other parties; (iii) Value of joint projects with other parties (i) Value of joint projects, transboundary projects and projects of basin-wide significance; (ii) Aggregate economic value of LMB water-related sectors
15. Self-finance of the MRC	53. Proportion of MRC budget funded by national contributions during current period	(i) MRC budget; (ii) National contributions to MRC budget

Figure B The definitions of indicators and parameters under the Mekong River Basin Indicator Framework (MRB-IF) (Based on Mekong River Commission, 2019, p. 12)

(cont')

The framework includes:

The Strategic Indicators are designed to provide high-level decision-makers and stakeholders with insights into critical issues in the Mekong Basin's development and management, answering the question, “What is the problem?”

The Assessment Indicators evaluate the Strategic Indicators, assisting planners in exploring alternative development scenarios and addressing the question, “Why is it a problem?”

Meanwhile, **the Monitoring Indicators** form the foundation of quality-assured data sets that support the evaluation of both Strategic and Assessment Indicators and help answer the question, “What is the cause of the problem?”

Together, these components form an integrated approach to identifying, analyzing, and addressing challenges within the basin.

APPENDIX C

The template of questionnaire report on the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context in the period 2019–2021 (concise version). The full template is accessible at [UNECE website](https://unece.org/environmental-policy/environmental-assessment/review-implementation-national-reporting) (<https://unece.org/environmental-policy/environmental-assessment/review-implementation-national-reporting>)

Part one Current legal and administrative framework for the implementation of the Convention

In this part, please provide the information requested, or revise any information relative to the previous report. Describe the legal, administrative and other measures taken in your country to implement the provisions of the Convention. This part should describe the framework for your country's implementation, and not its experience in the application of the Convention.

Please do not reproduce the text of the legislation itself but summarize and explicitly refer to the relevant provisions transposing the text of the Convention (for example, Environmental Impact Assessment Law of the Republic of ..., article 5 (3) of Government Resolution No. ..., para. ... item...)

Article 1 Definitions

I.1.1. Is the definition of the term "impact" for the purpose of the Convention the same in your legislation as that contained in article 1 (vii)?

- (a) Yes
- (b) Yes, with some minor differences (please explain the differences):
- (c) No, there are major differences (please explain the differences):
- (d) The term "impact" is not defined in the legislation

Your comments:

I.1.2. Is the definition of the term "transboundary impact" for the purpose of the Convention the same in your legislation as that contained in article 1 (viii)?

- (a) Yes, the same
- (b) Yes, with some minor differences (please explain the differences):
- (c) No, there are major differences (please explain the differences):
- (d) The term "transboundary impact" is not defined in the legislation

Your comments:

I.1.3. Please specify how the term "major change" is defined in your national legislation:

- (a) It is not defined
- (b) By using thresholds (Please explain:)
- (c) By using criteria (Please explain:)
- (d) On a case-by-case basis (Please explain:)

Your comments:

I.1.4. How do you identify the public "of the affected Party in the areas likely to be affected"? Please specify (more than one option may apply):

- (a) Based on the geographical location of the proposed project
- (b) By making the information available to all members of the public and letting them identify themselves as the public concerned

Part two

Practical application during the period 2019–2021³

Please report on your country's practical experiences in applying the Convention (not your country's procedures, as described in part one), whether as a Party of origin or as an affected Party. The focus here is on identifying good practices as well as difficulties Parties have encountered in applying the Convention in practice. The goal is to enable Parties to share solutions. Please therefore provide appropriate examples highlighting application of the Convention and innovative approaches to improving its application.

Part two also focuses on general issues arising from the sixth review of implementation of the Convention (2016–2018)^a and issues that have been identified as priorities by Parties in the 2021–2023 workplan.^b It also addresses the goals of the Long-term strategy and the action plan for the Convention and the Protocol that requires that the reviews of implementation be adapted, in particular, "to maximize their usefulness as a source of information, highlight progress achieved, draw attention to areas that need improvement, disseminate best practice ...".^c

^a United Nations publication, ECE/MP.EIA/32.

^b ECE/MP.EIA/30/Add.1–ECE/MP.EIA/SEA/13/Add.1, decision VIII/2–IV/2.

^c ECE/MP.EIA/30/Add.1–ECE/MP.EIA/SEA/13/Add.1, decision VIII/3–IV/3, annex, item II.A.9.

A. List of transboundary procedures initiated during the period 2019–2021

II.1. Please indicate, in the table provided in annex I to the present questionnaire, the total number of transboundary environmental impact assessment procedures initiated in the reporting period in relation to activities listed in appendix I to the Convention and in which your country was a Party of origin or affected Party. Please also indicate the number and types of transboundary procedures related to activities not listed in appendix I that your country implemented in the reporting period as a Party of origin or as an affected Party, if any.

Your comments:

II.2. Please list transboundary environmental impact assessment procedures referred to in question II.1. above using table 1 of annex II to the present questionnaire for procedures in which your country was a Party of origin and table (2) for procedures in which your country was an affected Party.

Your comments:

II.3. According to paragraph 10 of decision VIII/5 of the Meeting of the Parties the project lists referred to in question II.2 above and annex II to the present questionnaire are to be posted on the ECE website. Should your country object to this, however, please indicate "Yes" and explain, as relevant:

(a) Yes (my country has an objection the compilation and posting of this information)

Please explain:

(b) No (no objection)

³ Part II of this questionnaire is not considered to be a reporting obligation according to the Convention. Parties are encouraged to share examples of good practice, subject to their capabilities and the availability of relevant data.

Annex III

Template to describe an example of application of a transboundary procedure in accordance with the Convention in the reporting period

Please provide at least one example of application of a transboundary environmental impact assessment procedure in accordance with the Convention in the reporting period using the template and reflecting on the priorities of the 2021–2023 workplan and the long-term strategy. Should you wish to share more examples, please copy the template, as needed.

I. GENERAL INFORMATION

Please provide the following general information about the selected example:

- Title of the transboundary procedure:
- Party's role in the procedure and a list and roles of other Parties involved

Party of origin: <input type="checkbox"/>	Affected Party: <input type="checkbox"/>
Affected Party/ies: (please list)	Party/ies of origin: (please list)

- Duration and period of implementation:
- Stage(s)/step(s) of the procedure presented in this example:
 The entire procedure
 Notification (art. 3):
 Preparation of the environmental impact assessment documentation (art. 4):
 Consultations of the basis of the environmental impact assessment documentation (art. 5 (a)–(c))
 Final decision (art. 6):
 Post-project analysis (art. 7, if applicable)
 Other , please specify:

II. BACKGROUND

Please provide a short description of the activity, the context of its development and general information about the environmental impact assessment procedure

III. PROCEDURE UNDER THE CONVENTION AND ELEMENTS OF GOOD PRACTICE

Please describe, in more detail, using the subsections below, the procedural step(s) considered to represent good practice and then explain why that is.

- Notification (art. 3):
- Preparation of the environmental impact assessment documentation (art. 4):

In addition to the description above regarding the preparation of the environmental impact assessment documentation, please indicate the following:

- What alternatives were assessed and presented in the environmental impact assessment documentation?

APPENDIX D

Data analysis through hybrids coding under NVivo 14 software

1. Implementation under the Espoo Convention in both UNECE and non-UNECE member states

Table 1D Codebook of implementation experiences under the Espoo Convention context (cases from the questionnaire report)

Name	Files	References
Dealing with transboundary impact		
• Difference in definition		
○ A defined list of activities	1	7
- Major change	2	16
- Significance transboundary impact	1	12
○ Transboundary impact	2	9
• Difference in timeframe or deadline	2	6
○ Time frame for response to the notification	1	16
○ Time schedule for transmittal of comment from AP	1	12
• Ensuring equivalent opportunity between the party	1	3
• Identifying of Affected Party	1	8
• Language and translation	4	31
○ As a PO		
- Experience of translation	1	29
- Cost of translations	1	5
○ As an AP		
- Experience of translation	1	10
- Cost of translations	1	4
Experience on TEIA procedure		
• EIA documentation	3	6
○ Distribution of EIA documentation	1	5
○ Information in EIA documentation	2	10
○ Issues were covered in EIA documentation	2	36
○ Quality control measures	2	26

Name	Files	References
○ Reasonable alternatives	3	29
• Experiences of confirmation	2	11
• Experiences of consultation	6	30
○ As a PO	1	6
- Experience of interpretation during consultation	1	2
○ As an AP	1	5
- Experience of interpretation during consultation	1	2
• Experiences of final decision	2	5
○ Final decision	1	9
- When new information occurs	1	6
• Experiences of notification	3	14
○ Notification	3	13
- Ensure AP is informed	1	10
- Format of notification	1	8
- Information includes in notification	1	6
- The consequences when the affected party does not comply with the time frame	1	15
• Experiences of post project analysis	2	16
• Experiences of public participation	5	18
○ As a PO	1	4
- Equivalent opportunities and rights to participate	1	12
- Experience of interpretation during public participation	1	3
○ As an AP	1	4
- Equivalent opportunities and rights to participate	1	9
- Express their opinion on EIA documentation	1	10
- Experience of interpretation during public participation	1	2
- Costs of interpretation of public participation	1	10
• Experiences of transmittal of information	1	3
Key issues for implementing the Espoo Convention		
• Bilateral and Multilateral agreement	6	21
○ Issues in bilateral and multilateral agreements	2	10
○ The issues related to the translation	2	6
• International cooperation	5	12
• Sustainable development goals	2	11

Table 2D Codebook of implementation experiences under the Espoo Convention context (cases from the Implementation Committee report)

Name	Files	References
Dealing with transboundary impact		
• Economic activities and their environmental consequences	6	12
• identification of list of activity	1	1
○ Legislation gap	1	2
○ list of activity (major changes)	6	17
○ significant adverse transboundary impact	4	15
- opinions of AP to determine significant adverse transboundary impact	2	6
- opinions of PO to determine significant adverse transboundary impact	2	8
○ their opinion to identify major change	1	8
• identifying of Affected party	4	4
• the protocol on SEA	3	12
• Transboundary impact	5	6
Experience on TEIA procedure		
• application of the Convention	6	19
• application of the Guidance	4	23
• confirmation to participate	4	17
○ Lack of response	1	1
○ timeframe to response	2	16
• consultation	5	20
• decision-making process	3	6
• EIA documentation	4	12
○ distribution of EIA documentation	3	6
• non-compliance with the Convention	6	58
• notification	5	51
○ reasonable time frame for a response to a notification	1	4
• public participation	4	11
• recommendations by the Committee	6	27
• screening	6	68
○ AP's opinions on screening process	4	9
○ PO's opinions on screening process	1	2
• TEIA procedure implementation	6	58
○ failed or without to implement TEIA procedure	6	50
○ not failed to implement TEIA procedure	3	9

Name	Files	References
• transmittal of information	5	36
Key issues for implementing the Espoo Convention		
• Bilateral and multilateral agreement	3	13
• International cooperation	6	34
• International measures	2	4
• Sustainable development goals	2	2

2. The ASEAN context in dealing with transboundary impact issues (focusing on Thailand bordering to Lao PDR)

Table 3D Codebook of The Thai context in dealing with transboundary impact issues (focusing on Thailand bordering to Lao PDR)

Name	Files	References
Dealing with transboundary impact		
• Difference in definition		
○ List of activities	3	3
○ Transboundary impact	3	8
- Concern related to transboundary impact	3	9
• Identifying the Affected Party	1	1
• Limitation of EIA legislation	3	4
Experience under (T)EIA implementation		
• Experience on consultation	2	3
• Experience on final decision	1	4
• Experience on notification	2	3
• Experience on PNPCA	1	5
• Experience on post-project analysis	3	20
○ Citizen science	1	4
○ Monitoring measures	1	3
• Experience on public participation	2	15
Key issues of the Convention		
• International cooperation	3	19
• International measures	2	6
• Sustainable development goal	2	2

APPENDIX E

Summary of data from the questionnaire reports

Based on the documentary analysis of 16 response reports submitted by the parties, the questionnaire reports are structured into two parts as follows:

	Analyzed items	The data to be obtained
Part 1	Analyze 26 out of 33 items	In-depth details of the domestic regulations or legislation of ratified countries related to the implementation of the provisions of the Convention
Part 2	Analyze 14 out of 27 items and all information from example of application	Practical experiences, best practices, challenges, and solutions in applying the Convention by the ratified countries, both as Parties of Origin and as Affected Parties.

Table 1E Summary of data from the questionnaire reports

Part 1 Current legal and administrative framework for the implementation of the Convention

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
Article 1 Definition																	
I.1.2. Is the definition of the term “transboundary impact” for the purpose of the Convention the same in your legislation as that contained in Article 1 (viii)?																	
- Party provides same definitions of the term transboundary impact as the Convention	/	/	/				/			/		/	/				7
- Party provides a definition of the term transboundary impact has some minor differences to the Convention								/								/	2
- The term “transboundary impact” is not defined in their national legislation				/	/	/			/					/	/		7
I.1.4. How do you identify the public “of the affected Party in the areas likely to be affected”?																	
- Based on the geographical location of the proposed project									/					/	/		3
- Make information available to all members of the public and letting them identify themselves				/													1
- Integrated method from both (1) and (2)	/	/			/		/	/		/		/	/			/	9
- Party identified the “Affected Party” by other means			/			/											2
- Party is not defined any special provisions for identifying the public of the “Affected Party”											/						1
I.1.5. How do you determine the “significance” of the environmental impact of the activities falling within the scope of the Convention?																	
- By establishing threshold levels										/							1
- By applying criteria based on Appendix 3 of the Convention	/					/						/	/	/			5
- Based on case-by-case basis											/						1
- Integrated methods from (1) and (2)		/		/	/		/	/	/								6
- Integrated methods from (1), (2) and (3)															/		1
- Party did not determine the significance			/													/	2
Article 2 General provision																	
I.2.2. Is the list of activities referred to in appendix I to the Convention fully transposed into your country’s national legislation?																	
- List of activities in Appendix I of the Convention are covered by their legislation.	/		/		/			/	/	/	/	/	/				9

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- List of activities under their legislation differ slightly from the activities referred to in Appendix I		/		/		/	/							/	/	/	7
1.2.4. Is there an authority in your country that collects information on all the transboundary environmental impact assessment cases?																	
- There is an authority who responsible to collects information on all the TEIA cases.	/	/		/	/	/	/	/	/	/	/	/	/	/	/	/	15
- There is not an authority who responsible to collects information on all the TEIA cases.			/														1
Article 3 Notification																	
1.3.1. Article 3 (1) states that: “The Party of origin shall notify any Party which it considers may be an affected Party as early as possible and no later than when informing its own public about that proposed activity.” As a Party of origin, when do you notify the affected Parties?																	
- During scoping		/		/			/				/	/					5
- At other time	/		/		/			/	/								5
- Party did not have an experience										/						/	2
- The notification procedure may start in two cases (1) in the scoping phase and (2) the EIA report has been prepared and the domestic procedure has started.						/							/	/	/		4
1.3.2. Please define the format of notification used in your country																	
- They use the tubular or list format	/											/					2
- They use the letter forms						/		/	/								3
- A combination of the tubular and the letter													/				1
- They use own format		/		/													2
- There is no official format			/		/		/			/					/		5
- There is no experience										/						/	2
- Other														/			1
1.3.3. As a Party of origin, what information do you include in the notification (art. 3 (2))?																	
- They included all information that indicated under Art.3.2 and 3.5 into notification	/	/	/	/	/		/	/	/		/	/	/	/	/	/	13
- They included other relevant information into notification						/											1
- There is no experience										/						/	2
1.3.4. Article 3 (3) requires that “The affected Party shall respond to the Party of origin within the time specified in the notification”. As a Party of origin, please indicate whether your country’s legislative or regulatory framework defines a time frame for response to the notification by the affected Party/ies and, if so, how																	

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- The time frame is not specified in legislation		/									/						2
- The time frame is specified in legislation	/		/	/	/		/	/	/	/		/		/			10
- The time frame is determined and agreed with AP on a case-by-case basis						/							/		/	/	4
1.3.5. Please specify the consequences should a notified affected Party not comply with the time frame for responding to the notification, as required by article 3 (3), and elaborate on the possibilities of extending the deadline																	
- Deadline can be extended.		/	/	/	/	/					/	/		/	/		9
- There is no consequence.								/									1
- The procedure will proceed without the participation of the AP.	/						/		/				/				4
- There is no experience										/						/	2
1.3.6. Article 3 (8) states that: “The concerned Parties shall ensure that the public of the affected Party in the areas likely to be affected be informed of ... the proposed activity”. Which of the following approaches do you use to achieve this goal?																	
- They use the point of contact for the Convention listed on the Convention website	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	14
- They use the point of contact and other means														/			1
- There is no experience																/	1
1.3.7. On what basis does your country, as an affected Party, make the decision to participate (or not) in the transboundary environmental impact assessment procedure?																	
- The authority responsible consider and decides on its own based on the documentation provided by the Party of Origin	/	/	/	/						/				/			6
- Based on the opinion of the competent authorities of the AP					/										/		2
- Based on the opinion of the competent authorities and the public of the AP						/	/	/	/	/	/	/	/	/	/	/	9
1.3.8. How does your country, as a Party of origin, determine the time schedule referred to in article 3 (5) (a)?																	
- Following the rules and procedures of the PO	/		/	/	/		/		/		/	/		/	/		9
- Determined by using other means																/	1
- There is no experience										/							1
- A combination of following the rules and procedures of the PO and AP		/		/			/						/				4
- Based on case-by-case basis						/											1
Art. 2.6, 3.8, 4.2 PP																	
1.3.9. Article 2 (6) of the Convention states that: “The Party of origin shall provide an opportunity to the public in the areas likely to be affected to participate in relevant EIA procedures and shall ensure that the opportunity provided to the public of the affected Party is equivalent to that provided to the public of the Party of origin.”: How does your country’s environmental impact assessment legislation ensure that equivalent opportunities and rights to participate in the procedure are provided for the public of the affected Party?																	

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
As a PO																	
- There is specified in the national legislation	/	/		/	/	/	/	/	/			/	/	/			11
- There is not specified in the national legislation			/							/	/				/		4
- There is no experience																/	1
As an AP																	
- There is specified in the national legislation				/	/			/	/		/	/	/	/	/		9
- There is not specified in the national legislation		/				/	/			/							4
- There is no experience	/		/													/	3
I.3.10. How can the public of your country, as an affected Party, express its opinion on the environmental impact assessment documentation of the proposed project further to articles 2 (6), 3 (8) and 4 (2)?																	
- By taking part in consultations or a special event on territory of both Parties	/								/								2
- By taking part in consultations or a special event on territory of the AP								/									1
- By sending comments in writing directly to the competent authority													/				1
- By sending comments in writing directly to the competent authority and taking part in consultations or a special event on territory of the AP		/					/										2
- By sending comments in writing directly to the competent authority and taking part in consultations or a special event on territory of the PO			/								/						2
- By sending comments in writing directly to the competent authority and taking part in consultations or a special event on territory of both Parties				/	/					/		/		/			5
- By taking part in consultations or a special event on territory of the AP and using other means							/										1
- By using other means															/	/	2
I.4.1. How do you determine the relevant information to be included in the EIA documentation in accordance with article 4 (1)?																	
- Using Appendix II																	1
- Using Appendix II, the comment received from the authorities concerned and members of the public during the scoping phase	/					/		/	/	/			/	/		/	8
- Using Appendix II, the comments received from the authorities and members of the public concerned during the scoping phase, and the own expertise of the proponent.				/	/		/										3
- Using the comments received from the authorities and members of the public concerned during the scoping phase											/						1

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- Using other means		/										/			/		3
I.4.2. What quality control measures are provided for in the legislative or administrative framework of your country, as a Party of origin, to ensure sufficient quality of the documentation?																	
- They use quality checklists under Appendix II				/		/											2
- They use quality checklists under Appendix II, and all information was checked by the competent authority before being made available for comments	/		/						/			/	/				5
- The competent authority checks the information		/			/		/	/		/	/			/	/	/	9
I.4.3. How do you determine "reasonable alternatives" in accordance with appendix II (b)?																	
- Determine reasonable alternatives based on a case-by-case basis	/		/		/		/				/		/	/	/	/	9
- Reasonable alternatives are determined under the national legislation				/		/		/	/			/					5
- Other		/								/							2
Art.5 Consultation																	
I.5. Does your national EIA legislation provide for organizing transboundary consultations between the authorities of the Parties concerned?																	
- Transboundary consultations are obligatory in their legislation	/	/	/	/	/	/		/	/	/	/	/	/	/			13
- Transboundary consultations are optional							/										1
- They do not have any provision on transboundary consultation															/	/	2
Art.6 final decision																	
I.6.1. Please select from the list below the information that your country, as a Party of origin, in accordance with its legislative and administrative framework, should take due account of in the final decision on the proposed activity (art. 6 (1))																	
- All information is included for consideration in the final decision on the proposed activity	/	/	/	/	/	/	/	/	/	/	/		/	/	/	/	15
- Other information is included for consideration in the final decision on the proposed activity												/					1
I.6.2. Are the comments of the authorities and the public of the affected Party and the outcome of the consultations taken into consideration in the same way as the comments from the authorities and the public in your country (art. 6 (1))?																	
- All respondents consider the consultations and outcomes of the AP's authorities and the public equally	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	16
I.6.3. If one of the concerned Parties so requests, consultations shall be held as to whether the decision needs to be revised. Is there any regulation in your country that ensures the implementation of the provisions of article 6 (3)?																	
- There is national legislation for ensuring the implementation of the provisions of article 6 (3).	/				/			/	/	/	/	/	/	/			9

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- There is no national legislation for ensuring the implementation of the provisions of article 6 (3).		/	/	/		/	/								/	/	7
I.6.4. Do all activities listed in appendix I (items 1–22) and major changes thereto require a final decision to authorize or undertake such an activity in your legislative framework?																	
- All respondents require a final decision in their legislative framework for all activities listed in appendix I (items 1–22) and major changes	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	16
Article 7 Post project																	
I.7. Is there any provision regarding implementation of post-project analysis in your national environmental impact assessment legislation (art. 7 (1))?																	
- There is no special provision regarding post-project analysis of the transboundary cases in their EIA legislation						/											1
- There is provision regarding post-project analysis of the transboundary cases in their EIA legislation	/	/	/	/	/		/	/	/	/	/	/	/	/	/	/	15
Article 8 bilateral or multilateral agreement																	
I.8.1. Has your country established any bilateral or multilateral agreements to implement the Convention?																	
- Party did have bilateral or multilateral agreement	/				/		/			/	/	/		/	/		8
- Party did not have bilateral or multilateral agreement		/	/	/		/		/	/				/			/	8
I.8.2. What issues do these bilateral agreements cover (appendix VI)?																	
- Covers all issues listed in App. VI	/																1
- Covers issues listed in App. VI		/			/		/					/	/		/		6
- Other issues										/	/						2
- They did not respond			/	/				/	/					/		/	7

Part 2 Practical application during the period 2019–2021

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
II.5. As an affected Party, please specify in which language(s) the EIA documentation is made available for your own public to ensure effective public participation in transboundary procedures.																	
- In official language(s) of the country (AP)		/	/	/		/	/		/		/		/	/	/		10
- Information in English is acceptable	/				/			/		/		/					5
- They did not answer																/	1
II.6. What difficulties has your country experienced with regard to (A) Experience with regard to translation of the EIA documentation																	
As a PO																	
- There have been no significant difficulties regrading translation	/	/		/	/			/			/						6
- There have been significant difficulties regrading translation						/	/			/		/	/				5
- They did not answer / No experiences			/						/					/	/	/	5
As an AP																	
- There have been no significant difficulties regrading translation				/	/			/									3
- There have been significant difficulties regrading translation		/				/			/	/	/	/					6
- They did not answer / No experiences	/		/				/						/	/	/	/	7
II.6. What difficulties has your country experienced with regard to (B) Experience with regard to interpretation during consultation meeting with authorities																	
As a PO																	
- There have been no significant difficulties regrading translation				/	/			/									3
- There have been significant difficulties regrading translation											/		/				2
- They did not answer / No experiences	/	/	/			/	/		/	/		/	/	/	/	/	11
As an AP																	
- There have been no significant difficulties regrading translation								/									1
- There have been significant difficulties regrading translation											/						2
- They did not answer / No experiences			/	/	/	/	/		/	/		/	/	/	/	/	13
II.6. What difficulties has your country experienced with regard to (C) Experience with regard to interpretation during public participation-related events																	
As a PO																	
- There have been no significant difficulties regrading translation				/				/					/				3
- There have been significant difficulties regrading translation		/									/						2
- They did not answer / No experiences	/		/		/	/	/		/	/		/	/	/	/	/	11
As an AP																	

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- There have been no significant difficulties regrading translation				/	/			/									3
- There have been significant difficulties regrading translation		/									/						2
- They did not answer / No experiences	/		/			/	/		/	/		/	/	/	/	/	11
II.7. Which Party covers the cost of translation of environmental impact assessment documentation?																	
As a PO																	
- The developer or project proponent	/	/		/					/			/					5
- The PO					/		/	/		/			/				5
- The Party which needs the translation most			/														1
- They did not mention on these issues						/					/						2
- Other													/	/			2
- They did not answer																/	1
As an AP																	
- The PO	/				/			/									3
- The developer or project proponent		/															1
- The ministry or authority responsible of AP			/						/			/					3
- Other											/						1
- They did not answer				/		/	/			/			/	/	/	/	8
II.8. What parts of the environmental impact assessment documentation does your country usually translate/require to be translated?																	
As a PO																	
- The full EIA reports		/															1
- The summary documentation									/								1
- The full EIA reports and summary documentation							/	/					/				4
- The full EIA reports, summary documentation, and the chapter on transboundary effects						/					/						2
- Relevant EIA documentations	/								/					/			3
- Selected part to translate				/						/							2
- There is no need to translate															/		1
- They did not answer			/													/	2
As an AP																	
- The full EIA reports												/	/				2

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- The summary documentation					/												1
- The full EIA reports and summary documentation							/										1
- The full EIA reports, summary documentation, and the chapter on transboundary effects						/		/									2
- Relevant EIA documentations	/								/								2
- Selected part to translate				/													1
- There is no need to translate															/		1
- Based on correspondence between the Parties		/															1
- They did not answer			/							/	/			/		/	5
II.9. Has the issue of translation been addressed in bilateral agreements between your country and other Parties?																	
- The issues related to the translation have not been addressed in bilateral agreements	/		/	/	/	/		/	/	/			/		/		10
- The issues related to the translation are addressed in bilateral agreements		/					/				/	/		/			5
- They did not answer																/	1
II.10. As a Party of origin, how and in which language do you usually provide environmental impact assessment documentation to the affected Party?																	
- Full set of EIA documentation is translated into English	/								/								2
- Full set of EIA documentation is translated into official language(s) of AP														/			1
- Full set of EIA documentation is translated into English and into official language(s) of AP												/					1
- Full set of EIA documentation is translated into English and Selected parts into official language(s) of AP		/					/	/		/			/				5
- Selected parts of the documentation are translated into English			/														1
- Selected parts of the documentation are translated into official language(s) of AP											/						2
- Selected parts of the documentation are translated into English and into official language(s) of AP					/	/											2
- No need to translate															/		1
- They did not answer																/	1
II. 11. Please indicate how the costs of interpretation during the events organized within the public participation procedure are covered																	
- By developer or project proponent	/				/		/	/			/						5
- By developer/project proponent and authorities responsible in PO				/								/					2

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
- Shared by both Parties		/				/							/				3
- Other									/					/	/		3
- They did not answer			/							/						/	3
II.12. Please describe any difficulties that your country has encountered during public participation procedures																	
As a PO																	
- There have been no significant difficulties regrading translation				/	/		/	/	/				/				6
- There have been significant difficulties regrading translation												/		/			2
- No experience during the reporting period	/														/		2
- They did not answer		/	/			/				/	/					/	6
As an AP																	
- There have been no significant difficulties regrading translation				/	/		/	/	/								5
- There have been significant difficulties regrading translation		/										/		/			3
- No experience during the reporting period	/												/		/		3
- They did not answer			/			/				/	/					/	5
II.12. Please describe any difficulties that your country has encountered during consultation																	
As a PO																	
- There have been no significant difficulties regrading translation				/	/		/	/	/				/				6
- There have been significant difficulties regrading translation												/		/	/	/	4
- No experience during the reporting period	/																1
- They did not answer		/	/			/				/	/						5
As an AP																	
- There have been no significant difficulties regrading translation		/		/	/		/	/	/	/							6
- There have been significant difficulties regrading translation											/		/	/	/	/	5
- No experience during the reporting period	/												/				2
- They did not answer			/			/				/							3
II.13. Has your country carried out post-project analyses in the period 2019–2021 (Please list the projects for which post-project analysis was carried out, describing challenges and lessons learned, if any)																	
- There is no carried out post-project analyses in the period 2019–2021.	/				/	/		/	/	/	/			/	/		9
- There is carried out post-project analyses in the period 2019–2021.		/	/				/					/	/				5
- did not answer				/												/	2

Questions	Albania	Republic of Belarus	Belgium	Czech Republic	Estonia	Hungary	Lithuania	Malta	Republic of Moldova	Montenegro	Republic of Poland	Romania	Slovenia	Spain	Switzerland	Georgia	Total (n=16)
II.15. Please provide examples from your experience during the reporting period (either complete cases or elements such as notification, consultation and public participation) for the information of Parties that, in your view, constitute good practice or lessons learned on various topics																	
- Party provides good practice or lessons learned from their experience during the reporting period	/				/		/	/		/		/	/	/	/		9
- Party did not provide good practice or lessons learned from their experience during the reporting period		/	/	/		/			/		/					/	7
II.17. Please specify what quality control measures your country, as a Party of origin, applies to ensure sufficient quality of environmental impact assessment documentation and, in particular, that said documentation contains, as a minimum, information described in appendix II to the Convention.																	
- The competent authority conducts the quality check		/	/		/		/	/	/	/	/	/	/	/	/		12
- They use several means to conduct the quality check	/			/													2
- They did not answer						/										/	2
II.18. Please specify whether alternatives are assessed in the environmental impact assessment documentation and, if so, how. If possible, provide at least one example of such assessment, either as a Party of origin or as an affected Party, or both																	
- The alternatives are assessed in the EIA documentation.	/	/	/	/	/	/	/	/	/	/	/		/	/	/		14
- They did not answer												/				/	2
II.22. Please indicate whether environmental impact assessments implemented in your country can be considered to have contributed to the implementation of Sustainable Development Goals and their specific targets																	
- Certain EIA contributed somewhat to the attainment of SDGs	/	/													/		3
- Certain EIA significantly contributed to the attainment of SDG			/					/		/			/	/			5
- Certain EIA significantly contributed and somewhat to the attainment of SDGs					/												1
- There is no evidence that EIA contribute to the attainment of SDGs.				/	/	/		/		/							5
- They did not answer												/				/	2
II.24. Has your country had difficulties implementing the procedures defined in the Convention, either as a Party of origin or as an affected Party, because of a lack of clarity of the provisions?																	
- Type of EIA documentation	/																1
- Challenges in implementing Convention procedures		/		/											/		3
- Unclear provisions in the Convention										/							1
- They did not answer			/			/	/	/	/	/		/	/	/		/	10

Remark: The source of the questionnaire report is accessible at [UNECE website](https://unece.org/pep/review-implementation-2019) (https://unece.org/pep/review-implementation-2019)

BIOGRAPHY

Ms. Parach Runglek was born in 1998, in Nakhon Ratchasima Province, Thailand. She graduated from Marie Vithaya School, Nakhon Ratchasima, at the high school level. She then earned her Bachelor of Science degree in Environmental Health from Suranaree University of Technology in 2021, graduating with second-class honors. Following her undergraduate studies, she pursued a master's degree in Pollution, Environment, and Safety at Suranaree University of Technology. During her graduate studies, she was awarded the Graduate Degree Scholarship for Undergraduate Students with Academic Achievement. She also served as a teaching assistant for various laboratory courses in the Environmental Health program, gaining valuable experience in academic instruction and research.

In 2022, she had the opportunity to participate as a research collaborator in the project "*Assessing Research Effectiveness and Conceptualizing a Research Impact Assessment Framework: A Case of Developing Community-Led Health Impact Monitoring in Nan Province, Thailand (Regarding Transboundary Pollution Risks Around the Lao PDR – Thailand Border).*"