Dawei Special Economic Zone, City, and People: Learning from Map Tha Phut

(Working Title)

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Contents

TERMS AND ABBREVIATIONS

ADB	- Asia Development Bank
BOI	- Board of Investors
CSO.	- Civil Society Organization
CSR	- cooperate social responsibility
DIW	- Department of Industrial Works
DSEZ	- Dawai Special Economic Zone
EARTH-Thailand	- Ecological Alert and Recovery Thailand
EEC	- eastern economic corridor
EHIA	- Environment and Health Impact Assessment
EIA	- environmental impact assessments
ERM	- Environmental Resource Management
ESB	- eastern-sea board
ESDC	- Office of the Eastern Seaboard Development Committee
FTI	- Federation of Thai Industries
GDP	- gross domestic product
I-EA-T	- Industrial Estate Authority of Thailand
MTP	- Map Tha Phut
MTPIE	- Map Tha Phut Industrial Estate
NHRC	- Thai National Human Rights Commission
NEB	- National Environmental Board
NESDB	- National Economic and Social Development Board
NGO	- Non-Government Organization
NO_X	- nitrogen oxides
PM-10	- particulate matter-10
PTT	- Petroleum Authority of Thailand
PTT GC	- Petroleum Authority of Thailand Global Chemical
PTT LNG	- Petroleum Authority of Thailand Liquid Natural Gas
PTT PLC	- Petroleum Authority of Thailand Public Company Limited
S44	- Thailand Constitution Section 44
SCB	- Siam Commercial Bank
SCG	- Siam Cement Group Public Company Limited
SEZ	- special economic zones.
SO_2	- sulfur dioxide
TEI	-Thailand Environment Institute
TERRA/FER	- Toward Ecological Recovery and Regional Reliance/Foundation for Ecological Recovery
UCRSEA	- Urban Climate Resilience in Southeast Asia
VOCs	- volatile organic compounds
WHO	- World Health Organization

INTRODUCTION

Urban Climate Resilience in Southeast Asia (UCRSEA) partnership understands urbanization as a transformative process. Poverty, vulnerability, growth, and climate change impacts are influenced by ecology-human society interactions. With this focus, the partnership has identified Dawei, Myanmar as a secondary city with the potential to experience rapid growth through the creation of the Dawei Special Economic Zone (DSEZ). Development at this scale not only changes the economic linkages in the region; it has the potential to negatively transform society and the environment. For this reason, Mercy Corps and the Thailand Environment Institute (TEI) are working together to explore applicable environmental and social safeguards for Dawei with Map Tha Phut (MTP) as a frame of reference.

On the surface, environmental governance problems that led to a 2009 court case in MTP can be broadly described by the conflict between the socio-economic, political and environmental spheres. In exploring these issues, the Thailand Environment Institute (TEI) is examining the linkages between three influential stakeholder groups: regulatory bodies, businesses, and communities through NGOs, CSOs, and community leaders.

This article does not argue for or against the DSEZ, nor does it address the challenges present in Dawei. Instead, this article is written with the assumption that the DSEZ might continue and offers recommendations to better improve the environmental governance mechanisms and policies as the process moves forward.

Scope of Research

The Thailand Environment Institute seeks to understand the environmental governance changes in Map Tha Phut. In 1997 a high profile human-health scare in Rayong marked a significant turning point in the academic literature with many academics documenting the environmental and social challenges in the region. This paper explores some of the changes that occurred in the following years with a particular focus on the 2009 court case. The court case *The Supreme Administrative Court Order No. 592/2552* was the first of its kind in Thailand and marked a change in governance practices. This paper explores the following question:

> Has environmental governance changed since the 2009 court case *Supreme Administrative Court Order No. 592/2552* Anti-Global [Stop Global] Warming Association vs. National Environment Board?

In seeking evidence for this question we developed four goals:

I. to identify government priorities in the Map Tha Phut region,

II. to qualify effectiveness of existing policies,

III. to identify challenges to creating and enforcing policies, and

IV. to identify aspects of successes or failures in environmental governance of Map Tha Phut.

Methodology and Analysis Framework

A purposive sampling method is used in this study.[1] The stakeholder selection is based on entities that frequently appear in the secondary research and who currently or formerly worked within the Industrial Estate Authority of Thailand (I-EA-T) in Map Tha Phut, Rayong. The stakeholders for this study include representation from the community, government departments, and businesses. A crucial point of engagement is with community networks, represented in our research through community leaders, CSOs, and NGOs. Additionally, our stakeholder groups reflect similar stakeholders identified in Dawei through Mercy Corps and past exploratory trips to Dawei by TEI.

Interviews were conducted in two stages between July 25th and August 24th, 2017. Stage one took place in Bangkok with stakeholders whose offices are present in Bangkok while also being active stakeholders in Map Tha Phut. Stage two interviews took place in Rayong, Thailand.

Environmental Governance Framework

Environmental governance can be understood broadly as mechanisms and policies that influence decision making on environmental issues. As such, it is how to steer the relationship between society and the environment.[2] Environmental governance then places an emphasis on a participatory approach towards the decision-making process that is multilevel, multi-sector and multi-actor based.[3] A participatory approach is a critically important part of environmental governance as the decision to exclude participation has led to environmental and societal harm time and time again. This is increasingly important when framing environmental governance through an urban context as larger communities in small geographic spaces can have huge impacts.

Limitations

Limitations in research include the inability to access all stakeholders identified in the secondary research. TEAM, an environmental consulting firm active in Dawei and Map Tha Phut did not respond to our request to interview. Environmental Resource Management, another environmental consulting firm that is currently seeking consultants for Map Tha Phut projects, canceled due to scheduling conflicts. AECOM, which had worked in Map Tha Phut in the past, has in the last 10 years split from the group that worked in MTP and thus lost institutional knowledge of the area. AECOM could only speak to the broader experiences in Thailand as a whole. Additionally, our attempts to meet with the Federation of Thai Industries failed to receive a response. This stakeholder group would have rounded out our private sector stakeholders by including an organization whose interests represent a broader range of local businesses. They are a private sector organization self-described as a petrochemical industry club that links Thai industry and government with international markets. As a result of these limitations, our private sector stakeholders were limited to PTT, SCG, national and regional branches as well as AECOM.

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1 Baxter, Jamie, and John Eyles, "Evaluating qualitative research in social geography: establishing 'rigour'in interview analysis" *Transactions of the Institute of British geographers,* 22, no. 4 (1997): 505-525.

2 Evans, James P. *Environmental governance.*(Routledge, 2012).

3 Gibbs, David, and Gerd Lintz. "Environmental governance of urban and regional development–scales and sectors, conflict and cooperation" (2016): 925-928, https://doi.org/10.1080/00343404.2015.1110569; Ioppolo, G., S. Cucurachi, R. Salomone, G. Saija, and L. Shi, "Sustainable local development and environmental governance: A strategic planning experience" *Sustainability*, *8*(2), (2016): 180.

To reduce address these challenges, we sought confirmation through additional secondary research and corroborated responses with other interview data where possible and relevant. Additionally, we spoke with PTT and SCG subsidiaries from Rayong to reduce bias.

Another limitation of our research was the decision to restrict individual community participation in interviews. This decision was made due to large amounts of community targeted research previously conducted in the area. Additionally, we identified ethical concerns with interviewees not being the primary target of the research output. To mitigate this challenge we interviewed community leaders as representatives of the larger community. To reduce confirmation bias, our research sought to compare the data with NGOs and CSOs. Data collected here was cross-checked with other interviews and secondary data to further reduce bias.

Furthermore, the interviews were conducted in a mix of English and Thai depending on the preference of the interviewee. Simultaneous translation was provided only in a handful of interviews by Dr. Sayamon Saiyot and Ms. Parisud Seethongdee. To help ensure interview data was consistent from English to Thai, interviews conducted in Thai were also conducted by Dr. Sayamon Saiyot and/or Ms. Parisud Seethongdee who were present in and assisted with the English held interviews.

Despite these challenges, we believe that data was well rounded and with significant depth to answer our main research question.

STAKEHOLDER ANALYSIS

Figure 1 industrial clusters in MTP

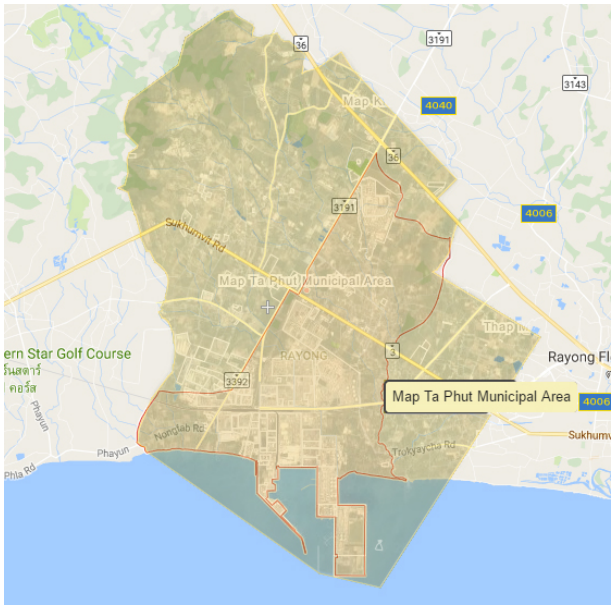

Figure 2 MTP Municipality

NGO/CSO representation was based on an organization's past involvement in the region with working knowledge of environmental and social policy impacts. They were also selected based on their appearance throughout the literature review. These NGO/CSO stakeholders included the Network of Eastern Friends (formerly known as Assembly of NGOs for the Protection and Conservation of the Environment and Natural Resources), the Stop Global Warming Association, Rayong Community Network, the Eastern People's Network, Green Peace, EnLaw, EARTH-Thailand, and the Foundation for Ecological Recovery (TERRA project). However, we were unable to meet with Rayong Community Network or Green Peace. While in Rayong, we were able to interview two community leaders that have participated in events and training activities held by Green Peace and other environmental groups.

Government representation was based on secondary research. Agencies and government organizations that directly impact environmental policy creation or enforcement in MTP were important stakeholders for the interviews. The selection included the Thai National Human Rights Commission, Pollution Control Department - regional and national levels, Map Ta Phut Industrial Estate, Office of the Natural Resources and Environmental Policy and Planning (ONEP), Rayong Provincial Industry Office, the Board of Investors (BOI), Industrial Estate Authority of Thailand (I-EA-T), Ministry of Industry, and National Economic and Social Development Board. Of these organizations, we were unable to interview the Pollution Control Department, Rayong Provincial Industry Office. We were able to supplement the interviews with both national and regional Department of Industrial Works.

Businesses representation was based on the diversified representation of industry where possible, however, the dominant industry in MTP is petrochemical based. The selection was based on secondary research and review of physical structures and land use in Map Tha Phut Industrial Estate (MTPIE). Businesses within the other two industrial zones, Hemaraj Eastern Industrial Estate and Hamaraj Rayong Industrial Land contained additional possible stakeholders but were rejected from this study as the business stakeholders were specific to MTPIE. Major business for consideration included Federation of Thai Industries (FTI), The Rayong Chamber of Commerce, PTT PLC of the subsidiary PTT LNG that manages the LNG port in Map Tha Phut, Siam Cement (SCG) of the subsidiary Thai Plastics and Chemicals, Nova Steel, BLCP Coal Power plant, TEAM Group, AECOM, and ERM. PTT, SCG, Nova Steel, and BLCP Coal Power represented different industries. TEAM Group, AECOM, and ERM represent EIA/EHIA consulting groups that have histories in Map Tha Phut. We were unable to interview FTI, the Rayong Chamber of Commerce, Nova Steel, BLCP Coal Power plant, TEAM Group, or ERM.

BACKGROUND

Historical context:

The importance of Map Tha Phut as a case study was determined by the similarities between Dawei and MTP. Today, Dawei is what Map Tha Phut was in the latter half of the 20th century; an under-developed resource-rich coastal region marked for intense industrial development. Map Tha Phut was established in 1962 as a sukhaphiban – which was modeled after Europe's sanitary districts; the smallest governing areas responsible for sanitation and public health. Map Tha Phut then became a small town (tessaban tambon) in 1991 and upgrade to a town (tessaban muang) in 2001. The area covers nearly 149 km^2 with over 64,000

local[4] residents. Additionally, 100,000 migrant workers live in MTP and nearly 10,000 registered migrant workers live throughout Rayong province.[5] The city is home to one of the world's largest industrial estates and rests along the eastern seaboard in Rayong Province. Within this province alone there are 13 industrial estates and over 350 factories[6]. The Industrial Estate Authority of Thailand (I-EA-T), a state-owned corporation, manages a number of industrial estates in Rayong that include: Hemaraj Eastern Seaboard 2, 3, & 4 industrial estates, Hemaraj Rayong 36 industrial estate, Luckchai Rubber industrial estate, Amata City industrial estate, Map Tha Phut industrial estate, and RIL industrial estate. The latter two are within MTP municipality along with the WHA Group owned Hemaraj Eastern industrial estate.

Development of these estates has huge economic impacts for Thailand. The decision to establish the eastern seaboard dates back to the late 1970s with the discovery of natural gas in the Gulf of Thailand.[7] The discovery lead to the creation of deep seaports in Rayong Province and a World Bank loan of present-day 3.6billion Thai baht to assist in the exploitation of the gas reserves.[8]

Economic benefits from industrial estates are only one side of a larger picture. The major risk to human and environmental health in and around MTP continues to lead to contention between communities, businesses, and government entities.

- Before 1989 – Land acquisition, first phases of MTP infrastructure begins.
- 1989 - Map Tha Phut Industrial Estate (MTPIE) was founded.
- 1997 - about 40 students and teachers from Ban Pittayakarn School reported respiratory problems, nausea, and vomiting with some being hospitalized from toxic fumes; the school was later shut down due to air quality concerns.[9]
- 2012 - a petrochemical complex exploded killing 12 people, injuring over 100 others, and lead to the evacuation of ten communities[10]
- 2012 – the Pollution Control department reported groundwater and soil contamination[11] from a waste collection site impacting a community's water source. The owner was fined and operation shut down.
- 2013 – Petroleum Authority of Thailand Global Chemical (PTTGC) reports 50,000 L (+1,000 gallon) of oil spilled off of the coast of Rayong Province.[12]

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4 Quandl. Population of Map Ta Phut. (acc. August 2017) https://www.quandl.com/data/CITYPOP/
City estimate differs significantly from the 2010 censes.

5 Hurights, Osaka, "Map Ta Phut: Thailand's Minamata?" Vol 68. (2012). https://www.hurights.or.jp/archives/focus/section2/2012/06/map-ta-phut-thailands-minamata.html; Sciortino, R., "International migration in Thailand 2009", (International Organization for Migration (IOM) 2009): 64.

6 For a list of BOI industrial estates in Thailand see http://www.boi.go.th/index.php?page=pdf_page&menu_id=350.

7 Lepoer, Barbara Leitch, and Library Of Congress. Federal Research Division. *Thailand: A Country Study*. Washington, D.C.: Federal Research Division, Library of Congress: (U.S. G.P.O, 1989). (Accessed November, 2017.) https://www.loc.gov/item/88600485/

8 ibid

9 Vajirakachorn, S., and W. Phoochinda, "An evaluation of Map Ta Phut Industrial Estate's air pollution reduction and elimination policy." The Sustainable City IX, WIT Transactions on Ecology and The Environment, (Southampton, UK: WIT Press, 2014): 1523–1534.

10 Fredrickson, Terry, "Factory blast at Map Ta Phut (updated)." (2012). http://www.bangkokpost.com/learning/learning-news/292077/factory-blast-at-map-ta-phut

11 Wangcharoenrung, "Thailand Soil and Groundwater". (Pollution Control Department, Thailand, 2015). http://sgw.epa.gov.tw/Resag/Upload/Files/20170418115030592d48.pdf.
1-2, Dichloroethane, Carbon tetrachloride, and cis 1-2, Dichloroethylene were found in the water samples.

12 Hume, Tim, and Kocha Olarn, "Thailand Koh Samet beach oil spill 'threatens tourism, fishing industries'". *CNN*, (2013). http://www.cnn.com/2013/07/31/world/asia/thailand-oil-spill-beach/index.html

- 2015 – present – plan to continue Map Tha Phut expansion; Transition from the eastern seaboard project (ESB) to its inclusion as part of the eastern economic corridor(EEC).[13]

Pollution issues in MTP come from a number of vectors. As an industrial estate, waste management is a constant area of concern. Nationally, industrial estates saw a downward trend of hazardous material waste from 2008 at 99.13%[14] to 2010 at 79.37%.[15] However, since 2015 poor enforcement and monitoring has lead to 35 landfill fires and 22 cases of illegal waste dumping.[16] In 2008, the Bangkok Post reported on illegal waste dumping in Ban Khaim Rayong just northeast of MTP.[17]

The Blacksmith Institute identifies air, soil, and water as pollution transmission sources in Map Tha Phut and while water and soil contamination has occurred, air pollution is cited as the vector of most concern.[18] According to local news reports, by 2009 at least 2,000 people had died from cancer connected to industrial pollution.[19] Air pollutants may lead to Map Tha Phut's irregularly high levels of genetic damage and cancer rates due to the releases of carcinogens[20] that affect the respiratory system, neurological system, reproductive system, blood system, liver and renal organs, and skin and eyes.[21] Additional, abnormally high levels of NO_x and SO_2 coming specifically from the petrochemical industry are possible contributors.[22] A study in 2016 suggests a strong relationship between air pollutants and human health stating that children living near industrial zones are at risk of developing respiratory symptoms.[23]

On the other hand, a study published in 2012 and two others in 2016 suggests little correlation between specific air pollution levels and the reported health problems. Researchers examined the association between proximity to Map Tha Phut Industrial Estate (MTPIE) and chronic respiratory and other irritant health problems.[24] The data, which included volatile organic compounds (VOCs), particulate matter-10 (PM10), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and ozone failed to find a relationship between chronic

13NESDB. "Thailand's Eastern Seaboard Development", (2016). http://www.nesdb.go.th/ewt_dl_link.php?nid=6473

14Panyathanakun measured hazardous waste as a ratio: total combined hazardous and non-hazardous waste by 1000kgs.

15Panyathanakun, V., S. Tantayanon, C. Tingsabadh, and K. Charmondusit, "Industrial Wastes Management Opportunities Towards the Eco-industrial Estate Development of the Northern Region Industrial Estate of Thailand." *Journal of Research in Environmental Science and Toxicology* 1(10), (2012): 258–266.

16 Rujivanarom, Pratch. "Govt failing on environment, efforts to curb pollution: report", *The Nation*, (2017). http://www.nationmultimedia.com/detail/national/30317290

17 Chaiyarin, Jakkrit, "Map Ta Phut villagers issue rally threat." (2008). https://www.pressreader.com/thailand/bangkok-post/20080105/281578056334731

18 Blacksmith Institute, "Map Ta Phut", (2017). http://www.blacksmithinstitute.org/projects/display/83 (Accessed May 2017)

19 Fuller, Thomas, "In Industrial Thailand, Health and Business Concerns Collide". *New York Times,* (2009). http://www.nytimes.com/2009/12/19/world/asia/19thai.html (Accessed May, 2017); Kovidhavanij, W., "Thailand: Map Ta Phut, Industry and Environment: Challenges of Sustainable Development" *Asia News*(2012). ; Pangsapa, Piya, "Environmental justice and civil society" , in *Routledge Handbook of Environment and Society in Asia* ed. Paul G. Harris and Graeme Lang (Abingdon: Routledge, 26 Aug 2014), Routledge Handbooks Online.

20 Twenty-one plants use carcinogenic substances in their production process. Other toxic substances are harmful to the respiratory system (34 projects), neurological system (24 projects), reproductive system (10 projects), fetus (4 projects), blood system (8 projects), liver and renal (25 projects), skin and eyes (33 projects): see Hurights, Osaka, "Map Ta Phut", 2012.

21 Hurights, Osaka, "Map Ta Phut", 2012; Buakamsri, T., D. Larson, F. Harnnarong, P. Saetang, and W. Mooksuwan. "Thailand's air: poison cocktail exposing unsustainable industries and the case for community right to know and prevention." Global Community Monitor (2005); Pangsapa, "'Environmental justice", 2014).

22 Chusai, Chatinai, Kasemsan Manomaiphiboon, Phirun Saiyasitpanich, and Sarawut Thepanondh. "NO2 and SO2dispersion modeling and relative roles of emission sources over Map Ta Phut industrial area, Thailand." *Journal of the Air & Waste Management Association* 62, no. 8 (2012): 932-945.

23 Asa, Paradee, and Wanida Jinsart. "Effects of Air Pollution Related Respiratory Symptoms in Schoolchildren in Industrial Areas Rayong, Thailand." *EnvironmentAsia,* 9, no. 1 (2016).

24 Tanyanont, Wacharin, and Nuntavarn Vichit-Vadakan. "Exposure to volatile organic compounds and health risks among residents in an area affected by a petrochemical complex in Rayong, Thailand." *Southeast Asian Journal of Tropical Medicine and Public Health* 43, no. 1 (2012): 201.

respiratory symptoms and residential proximity. The authors concluded while low levels of VOCs alone may not have significant health impacts, interactions between VOCs and other air pollutants could cause compounding effects.[25] Two separate studies conducted four years later provided evidence to support these findings. A 2016 study indicated low levels of VOCs during short-term simulations.[26] Similarity, a second study examined the assimilative capacity of sulfur dioxide (SO_2) and oxides of nitrogen (NO_x) and found that SO_2 levels did not exceed those set out by Thailand's present regulatory standards.[27] Additionally, they stated the NO_x output at the projected annual levels did not exceed the regulatory standards for Thailand. This again suggested little correlation between present air pollution levels and health risks. However, Thailand ambient air standards differ significantly from the World Health Organization (WHO) air quality standards where the latter standards are stricter:

	WHO[28]	Thailand[29]
NOx	40 μg/m³ annual mean	57 □ g/m³ annual mean
	200μg/m³ hour mean	320 □ g/m³ hourly mean
SOx	20□ g/m³ 24hour mean	300□ g/m³ 24hour mean

Conflicting scientific evidence on human health impacts and how this connects to the petrochemical industry adds confusion and skepticism to the research conducted in the region. Community members expressed reservation towards researchers. Businesses were also skeptical of researchers siding with community grievances. As demonstrated above, scientific environmental and human health investigations have been studied in-depth in Rayong with large amounts of qualitative data being produced. A critical look at the relationship dynamics between these stakeholders was needed.

Supreme Administrative Court Order 596/2552:

One of the longest on-going challenges in Map Tha Phut has its roots in the 1997 Ban Pittayakarn School closure due to environmental and human health impacts. Following this incident, academics, researchers, community-based organizations, and government entities began studying human and environmental impacts in MTP. In 2007 the Thai National Human Rights Commission (NHRC) received a number of complaints about pollution in MTP. By 2009 community representatives and the Eastern People's Network filed a lawsuit against the National Environment Board (NEB) for failure to comply with Section 67 paragraph 2 of the 2007 Constitution[30]. There were two distinct court cases brought against NEB. The first was a petition to designate MTP as a pollution control zone and the second was to challenge 76 projects that had been granted permission without complying with the constitution.[31] The latter case specifically addresses the requirements for an environmental impact assessment (EIA) and community involvement in each project.[32] Later that year the Central Administrative Court ruled in favor of the communities and suspended 76 projects, of which 74

25 ibid.

26Teerapattarada, N., Y. Vathanapanich, and W. Jinsart. "Health Risk Assessment of Industrial Emissions in Map Ta Phut, Thailand using AERMOD Modeling and GIS." *International Journal of Geoinformatics* 12, no. 1 (2016).

27 Thawonkaew, Apiwat, Sarawut Thepanondh, Duanpen Sirithian, and Lasita Jinawa. "Assimilative capacity of air pollutants in area of the largest petrochemical complex in Thailand." *International Journal* 11, no. 23 (2016): 2162-2169.

28 World Health Organization & UNAIDS, "Air quality guidelines: global update 2005", *World Health Organization* (2006).

29 Pollution Control Department http://www.pcd.go.th/info_serv/reg_std_airsnd01.html#s1

30 Order No. 592/2552. Anti-Global Warming Association v National Environment Board. 2552, http://admincourt.go.th/admincourt/upload/webcmsen/Judgment/Judgment_130214_155748.pdf.

31 EARTH-Thailand, personal communication, August 7, 2017

32 Economic Intelligence Center, "SCB insight November 2009: What is the impact of the Map Tha Phut Case on the Economy?", *SCB*. (2009).

were eventually allowed to continue operations by mid-2010.[33] The remaining two remaining projects, a PTT expansion project of mono-ethylene glycol and an SCG subsidiary Thai Plastic and Chemical expansion project for vinyl chloride monomer, were designated hazardous to human health. These two projects were later allowed to continue following the submission and approval of a newly conducted EHIA.[34]

An early look at the lawsuit explains why some of these businesses were allowed to continue operations. Some projects such as the PTT LNG project and 10 other projects were granted permission to continue because they were designated 'eco-friendly' with no human-health impacts.[35] Eco-friendly projects included clean energy, gas recycling, oil vapor control and air quality control, etc. By the end of 2009, businesses who had received permits prior to the 2007 Constitution taking effect were exempt as well. These projects included Siam Yamato Steel Co. Machinery and projects where construction had already begun before the court order. Additionally, other projects that had already begun construction were viewed as a risk to the communities and neighboring facilities if not maintained, tested or under operation.[36] Businesses that fell under this category were given permission to continue as well.

The ruling also established an independent panel for an environmental review that recommended 18 development project types to be labeled as hazardous to human health.[37] This was a direct result of 35 of the 76 suspended projects were found to directly use hazardous chemicals; this was later reduced to 11 development project types.[38] The decision to reduce the number from 18 to 11 categories may be due to concerns about investment and economic competition. Investment is an important consideration in MTP as Rayong plays a pivotal role in the transport and manufacturing of petroleum-based goods throughout Southeast Asia.

Eastern Economic Corridor:

From a purely economic perspective, the lawsuit and initial ruling posed a serious risk to an already fragile economy. Thailand was still returning from the global economic downturn in 2007 which began in the western markets. The lawsuit also followed on the heels of the 2006 government transition which then continued through four different prime ministers by the end of 2008. Insecurity for investors on both the political and economic fronts compounded the risks. The National Environmental Board (NEB) failed to designate Map Tha Phut as a pollution control area and even knowingly allowed industrial development in order to avert economic losses[39] - the impact of which SCB had estimated at 60 billion Thai baht on Thailand's GDP.[40]

Business insecurity is problematic both to the country and to the region as a whole. Access to existing infrastructure, international waterways, and proximity to neighboring countries makes the Bangkok to Rayong

33 Economic Intelligence Center. 2009; National Human Rights Commission of Thailand, "Submission of Submission of the National Human Rights Commission of Thailand on Thailand's implementation of the International Covenant on Economic, Social and Cultural Rights", (2015).

34 Bantillo, Pearl, "Thai PTTGC on track to expand Map Ta Phut capacity:CEO", *ICIS*, (2013). https://www.icis.com/resources/news/2013/12/19/9737119/thai-pttgc-on-track-to-expand-map-ta-phut-capacity-ceo/ ; Wiriyapong, Nareerat, "Thai plastic to expand investment in Burma", *Bangkok Post*, (2011). http://www.pressreader.com/thailand/bangkok-post/20110223/282273841854793; Viboonchart, Nalin, "TPC looks overseas after loss of license", *The Nation*, (2010). https://www.pressreader.com/thailand/the-nation/20100904/281569467047418

35 Clifford Chance, "Client briefing, March 2010". (Thailand, 2010); PTT LNG, personal communication, August 24, 2017

36 ibid

37 Pangsapa, P., "'Environmental justice", (2014).

38 ibid

39 Hassarungsee, R., and S. Kiatiprajuk. "Time to rethink industrial development." *Chulalongkorn Social Research Institute*, (Bangkok, Thailand 2010).

40 Economic Intelligence Center. 2009

route an important industrial cluster. Map Tha Phut specifically is a target for development because of its ability to situate deep-sea ports off the coast.[41] Public investment in the eastern seaboard (ESB) has been 0.3 trillion baht since 1987 which includes the Japan International Cooperation Agency loan.[42] Investment is planned to increase to more than 1.9 trillion baht over the next few years with connections to special economic zones such as the SEZ in Dawei, Myanmar.[43]

Heavy investment in the region is also being pushed by the Asia Development Bank (ADB) through the creation of economic corridors which hope to connect Vietnam, Cambodia, Thailand, Myanmar, and India through existing and newly created trade routes. The ESB plan has since been redefined as the Eastern Economic Corridor (EEC) with plans to connect development projects across these trade routes.[44] ADB also hopes to connect these corridors north-south with Malaysia, Thailand, Laos, and China. Rayong province is an important part of these corridors as an economic and resource distribution hub.

According to the ADB, economic corridors are crucial to regional development. They have been instrumental in alleviating poverty in the region by connecting landlocked areas to new global trade routes.[45] Job creation and industrial clusters through the utilization of existing infrastructure contribute to regional economic resilience during times of global uncertainty.[46] While these claim may be true in terms of GDP and reported job numbers, concerns still remain with who truly benefits from the economic corridors. Local communities acknowledge an increase in economic activities does, in fact, occur around them but claim they themselves are not the beneficiaries. "They are selling the country and sea with no return to the community".[47] This is concerning for already marginalized groups who are then pushed further to the peripheries by their inability to participate in the development. The supposed benefits they receive through regional economic growth is a classic trickle-down economics strategy that fails to give tangible benefits to the communities.

Map Tha Phut has a deep-rooted history as a development area for economic purposes being first apart of the ESB and now as a focus for the EEC. The connections to deep seaport access, infrastructure and trade routes that connect internationally make the area ideal for economically driven development despite the environmental or human cost.

Map Tha Phut Expansion:

Map Tha Phut is undoubtedly an important part of Thailand's economic future. As such, expansion plans for the region are unsurprising. In 1990, Thailand abandoned the creation of an industrial zone along the western seaboard due to costs and lack of infrastructure.[48] Then, following the 2009 court case, Thailand re-adopted the Eco-Industrial Estate Development strategy, with a focus strengthening intra- and inter-country networks with particular emphasis on sustainable development.[49] This plan was abandoned in the

41 NESDB, "Thailand's Eastern", (2016)

42 ibid

43 Janssen, Peter, "A new industrial vision for Thailand?", *Asia Times*, (2017).http://www.atimes.com/article/new-industrial-vision-thailand/

44 ibid

45 De, Prabir and Kavita Lyengar, eds., "Developing Economic Corridors in South Asia", *Asian Development Bank*. (Philippines, 2014). https://www.adb.org/sites/default/files/publication/162073/developing-economic-corridors.pdf; Asia Development Bank (ADB), "Sharing Growth and Prosperity: Strategy and Action Plan for the Greater Mekong Subregion Southern Economic Subregion", *ADB*. (Philippines, 2010). https://reconasia-production.s3.amazonaws.com/media/filer_public/04/07/0407ec3a-0ce0-4769-b967-a893d01c9fb1/gms-action-plan-south.pdf

46 ADB, "Sharing Growth", (2010)

47 EFN, personal communication, August 21, 2017

48 Steinberg, Florian and Januar Hakim, eds., "Urban Development in the Greater Mekong Subregion". *ADB*. (2016). https://www.adb.org/sites/default/files/publication/185008/urban-development-gms.pdf

49 Panyathanakun, V. et. al, "Industrial Wastes" (2012).

early 2000's due to a disconnect between implementers and the general public. The failure to include the public in the decision-making process is the very problem that led to the MTP court case.[50] Rebranding the expansion as an "Eco-Industrial Estate Development" with little change in community inclusion indicates government priory in the region – one that is economically driven.

These two reasons, abandoning the western seaboard project and the creation of "eco-industrial estates", are specifically why Map Tha Phut continues to be a strategic economic location. Infrastructure already exists with the capacity to expand at a significantly lower investment cost than building from scratch. MTPs location between Viet Nam's ports and the developing Dawei project will further encourage economic growth and necessitate capacity expansion in MTP.[51] Furthermore, since this writing, the Ministry of Industry and the Special Economic Zone Committee are in the process of approving the Eastern Special Economic Zone Act (EEC Act), of which MTP is a part.[52] This will grant special privileges such as tax incentives, employment benefits, long-term land leases and shorter Private, Public, Partnership approval processes.[53] The EEC will add further expansion through heavier investment. This is been justified through greener investment in technology, industry, and other 'green' initiatives, hence the rebranding as an eco-industrial estate.[54]

Additional evidence already exists that further support Map Tha Phut's expansion plans. MTP's LGN terminal will expand by 1.5 million tons of fuel per year capping at around 11.5 million tons by 2019.[55] Two Japanese companies have recently signed a 95 billion Thai baht agreement to construct a pipeline that coincides with PTT's new long-term agreements with British Petroleum, Royal Dutch Shell, and Qatar gas.[56]

As made evident above, economic drivers have a pivotal role in MTPs continual development. Insecurities from the past geopolitical and economic pressures as well as domestic policies are pushing a need for Thailand to secure MTP as an economic powerhouse. Therefore development activity in MTP is inevitable and unsurprising.

SITUATIONAL ANALYSIS:

As is the case in any country, navigating the regulatory system is a complicated and challenging endeavor for experts and laymen alike. Businesses have a number of regulators to report to and businesses within industrial estates have special requirements to follow. Communities have an equally challenging time navigating legislation and often lack legal expertise thus relying on businesses to conduct themselves in accordance with the law. Their only other option is to seek legal support from NGOs and CBOs. There are a number of regulatory bodies that play an important role in industrial estate development. These include National Economic and Social Development Board (NESDB), Board of Investors (BOI), Industrial Estate

50 ibid

51 ibid

52 Ministry of Industry, "'Eastern Economic Corridor Development project 'Driving Forward", (2017). http://www.boi.go.th/upload/EEC%20pack%20for%20BOI%20fair_Rev4%203%201.pdf.

53 ibid

54 Ministry of Industry, "'Eastern Economic", (2017); Industrial Estate Authority of Thailand, "Driving Sustainability with I-EA-T". *I-EA-T*, (2015). http://www.ieat.go.th/assets/uploads/cms/file/20160722141349617897824.pdf; Kitakyushu Asian Center for Low Carbon Society et al., "FY 2015 Feasibility Study on Joint Crediting Mechanism Project For Realization fo a Low-Carbon Society in Asia - Promotion of Decarbonizing of Municipal Waste Management and Ecological Industrial Town in Rayong Province Report". *Repot*. Ministry of the Environment (Japan, 2016). http://www.env.go.jp/earth/coop/lowcarbon-asia/english/project/data/08eng_THA_H27_08.pdf

55 LNG World News, "Thailand's PTT eyes $28 mln Map Ta Phut LNG terminal expansion", (2016). http://www.lngworldnews.com/thailands-ptt-eyes-28-mln-map-ta-phut-lng-terminal-expansion/

56 LNG World News, "Thailand's PTT", (2016); Kemp, Andrew, ed., "Marubeni, Itochu win Thai gas pipeline contract". *AsianOil – Asia Oil and Gas*. issue 558, (2017). https://newsbase.com/topstories/marubeni-itochu-win-thai-gas-pipeline-contract

Authority of Thailand (I-EA-T), Department of Industrial Works (DIW), and the Office of the Natural Resources and Environmental Policy and Planning (ONEP).

NESDB:

Established in 1959 as the National Economic Development Board, the renamed National Economic Social Development Board is described as a national planning agency. As such, they are arguably one of the most influential environmental governance bodies in Thailand. They provide recommendations for and a pathway towards economic and social development through steering national level policymakers. Significant changes have occurred over the years in how Thailand focuses on development through the NESDB. The changes in development strategies throughout the years reflect the changes in government priority. It also provides insight into the impact of shifting political leadership throughout Thailand's history and how different administrations enforce and change the NESDB policy.

Despite these political changes, two important points of consistency have remained within the NESDB plans from its early stages. The first constant has been an intense focus on securing economic development and growth. The first seven plans NESDB produced focused heavily on economic growth using industrial style clustered-industry development. In other words, Thailand focuses on compacting industry within small geographic areas. Industrial estates were established under the NESDB guiding principles of these earlier plans. The eastern seaboard development strategy, as well as MTP, was designed from the sixth plan.[57]

A second constant among the plans is a focus on environmental considerations. Environmental laws have been a part of Thailand's legal system for a number of years now. As early as 1967, the Toxic Substance Act came into force. In 1992 the Hazardous Substance Act was introduced defining laws, enforcement and penalties and replaced the Toxic Substance Act of 1967 and 1973.[58] Additional amendments were made to the Hazardous Substance Act in 2013 that expanded responsibility and regulations of the original but also gave authority to local agencies to revoke registration permits for violations.[59] In 1992 the National Environment Act came into force, which specifically requires the use of environmental impact assessments (EIA) as a tool for project evaluations. A more evident example of NESDB's influence on environmental governance policy came in 2007 with the inclusion of Article 67 of the 2007 Constitution. This policy specifically states a need for environmental and health impact assessments.

> "Any project or activity that seriously impacts the quality of the community or environment […] shall not be permitted unless its impact of the quality of the environment and people's health in the community has been studied and evaluated…".[60]

As demonstrated above, as the early as the 1960s NESDB considered aspects of the environment critical to economic development. While their focus was mainly on the agriculture, energy or resource extraction, and forest sectors, their aim was essential the same – to encourage economic growth while securing natural resources for future use.[61]

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57 see NESDB plans 1-7 at http://www.nesdb.go.th/nesdb_en/main.php?filename=develop_issue

58 Nilprapunt, Pakorn, translation,. "Unofficial translation: Hazardous substance act, B.E. 2535". *Government Gazette*. Vol. 109. Part 39. (2535/1992). http://www.chemsafetypro.com/Topics/Thailand/Thailand_Hazardous_Substance_Act_BE_2535.pdf

59 Little Pro, "Thailand Hazardous Substance Act". *ChemSafetyPro*, (2016). http://www.chemsafetypro.com/Topics/Thailand/Thailand_Hazardous_Substance_Act.html

60 Community Rights. Thailand Constitution 2550 (2007) §12 Article 67; unofficial translation provided by Bureau of Technical and International Cooperation Secretariat General of the Administrative Court

61 see NESDB plans 1-7 at http://www.nesdb.go.th/nesdb_en/main.php?filename=develop_issue

The first major shifts in the national development strategy occurred in the eighth NESDB plan. This was the first transition from economic growth-oriented development to human-centered development and blamed decades of imbalanced strategies for Thailands socio-economic situation in the mid-1990s.[62] The eighth plan specifically blames rapid economic growth for negative impacts on Thai society at large. Another major shift that occurred in this plan was a transition in language. All earlier plans had specific numeric targets such as the "target to raise GDP […] by an average rate of 8.5%",[63] or the goal to "designate national forest reserve areas at 25% of total area in Thailand"[64]. The language in the eighth plan became more general using language such as to "foster", "promote", "improve", and "encourage" rather than using specific numeric targets. This transition in language is significant. The policies developed from this point onward were more likely viewed as suggestions and lost significant strength in terms of enforcement.

The ninth plan added a "Sufficiency Economy" philosophy to the already people-centered development of the eighth plan. This philosophy is described as a middle path to raise up the poor and "reduce the vulnerability of the nation to shock and excesses that arise from globalization".[65] This plan blamed Thailand's past strategies of "quantity vs. quality development" as a persistent problem among the previous plans.[66] It also sought to include more public participation in the development process.

The tenth plan saw another shift - this one towards sustainability reinforcing the earlier NESDB plans that sought to protect resources by focusing more on biodiversity and hazardous substances.[67] One of the main purposes of this shift was to "create good governance for the sake of the quality of life".[68] This plan also focused on starting Thailand's transition to advanced technology such as biotechnology, and advanced production – a shift that helped encourage the adaptation of the "eco-industrial villages".

The eleventh plan introduced the "Balanced Growth" philosophy which attempted to balance economic needs with environmental and social concerns.[69] While similar to the previous 8th, 9th, and 10th plans the 11th plan specifically cited MTP as an example of management and policy failures.[70] The creation of the 11th plan followed on the heels of the MTP lawsuits and sought to better align development to avoid future MTP situations. Unfortunately, during the implementation of this plan, Thailand experienced another major shift in government and in national priories.

NESDB's current 12th plan is a return to the Sufficiency Economy philosophy in response to continued economic challenges. This plan incorporates sustainable development and people-centered development with a greater focus on environmentalism and resilience-focused strategies[71]. However, this plan takes a more

62 NESDB. Thailand (n.d). *The eighth national economic and social development plan (1997-2001)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=3783

63 NESDB. Thailand (n.d.). *The second national economic and social development plan (1967-1971)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=3777

64 NESDB. Thailand (n.d). *The seventh national economic and social development plan (1992-1996)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=3782

65 NESDB. Thailand (n.d). *The ninth national economic and social development plan (2002-2006)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=3784

66 ibid

67 NESDB. Thailand (n.d). *The tenth national economic and social development plan (2007-2011)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=3785

68 ibid

69 NESDB. Thailand (n.d). *The eleventh national economic and social development plan (2012-2016)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=3786

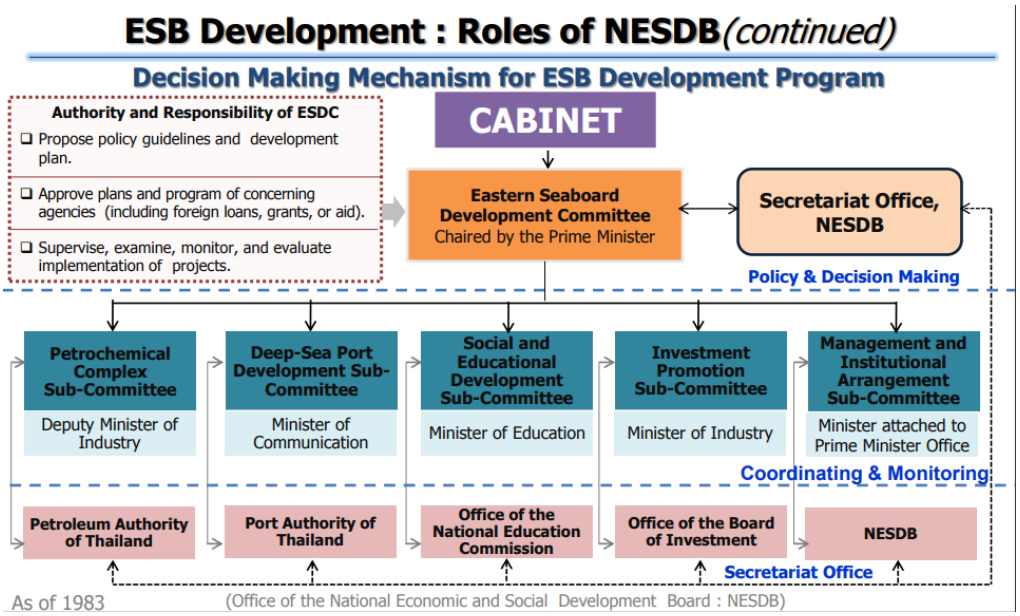
70 ibid

71 NESDB. Thailand (n.d). *The twelfth national economic and social development plan (2017-2021)* http://www.nesdb.go.th/nesdb_en/ewt_dl_link.php?nid=4345

national level approach to economic resilience. It utilizes existing infrastructure at the cost of those in areas such as MTP for the betterment of the country at large.

For example, in 2016 the NESDB approved the EEC framework and published a presentation that outlined their role in the ESB plan. They state they are tasked with creating the decision-making mechanism and setting up the Office of the Eastern Seaboard Development Committee (ESDC) under the NESDB as secretariat office.[72] The decision-making process for the ESB in terms of input and process is very much a one-dimensional top-down mechanism. Limited or no community involvement is visible in the structure of Figure 1 below.[73] Once again this suggests the government priority is economic and can, in part, explain why MTP expansion continues despite community reservation towards the ECC.

Figure 3 NESDB Decision Making flow chart June 2016



Other Regulatory Bodies:
BOI

The Board or Investment (BOI) provides guidelines for investment through incentive creation. BOI policies include specific social and environmental protection laws. Their guide for investors in a 2017 document[74] includes a section on environmental requirements that have been required for a number of years. The BOI requires compliance with Investment Promotion Act 2520 and amended in 2534 and 2544.[75] The Investment Promotion Act requires compliance with the order No. 2 /2557 Policies and Criteria for Investment Promotion[76] in addition to other regulations.

72 NESDB. "Thailand's Eastern", (2016).
73 ibid
74 Board of Investment, "Unofficial Translation- Announcement of the board of investment, policies and criteria for investment promotion." *BOI*, (2017). https://policy.asiapacificenergy.org/sites/default/files/newpolicy-announcement%20as%20of%2020_3_58_23499.pdf.
75 Board of Investment, "Investment Promotion ACT B.E. 2545", *BOI*, (2002). http://www.boi.go.th/english/download/boi_forms/proact_eng.pdf.
76 Board of Investment, "Unofficial Translation - Announcement of the Board of Investment No. 2 /2557 Policies and Criteria for Investment Promotion".*BOI*, (2014).

The below legislation is of particular importance. They specifically set out regulation on harmful impacts towards the public and environment.

> "The investment project to which the Board may grant promotion shall be one which incorporates appropriate measures for the prevention and control of harmful effects to the quality of the environment in the interest of the common good of the general living of the public and for the perpetuation of mankind and nature."[77]

> "Adequate and efficient guidelines and measures to protect environmental quality and to reduce environmental impact must be installed. The Board will give special consideration to the location and pollution treatment of a project with potential environmental impact."[78]

> "Projects or activities with type and size that are required to submit environmental impact assessment reports must comply with the related environmental laws and regulations or Cabinet resolutions"[79]

> "Projects located in Rayong must comply with the Office of the Board of Investment Announcement No. Por 1/2554 dated May 2, 2011, on Industrial Promotion Policy in Rayong Area."[80]

To further assist developers, the BOI publishes a guide to the environmental regulations relevant to investment that includes: The National Environmental Quality Act of B.E. 2535 (1992); Soil Quality Standards (2004); Air Quality and Noise Standards (2007); Water Quality Standards (2009); and The Factory Act of B.E. 2535 (1992).[81]

I-EA-T

Industrial Estate Authority of Thailand (I-EA-T) is a state enterprise under the Ministry of Industry. As of 2015, there are 11 industrial estates fully managed by I-EA-T and another 45 estates jointly operated.[82] According to the I-EA-T, the establishment of industrial estates is to concentrate industrial development into area-specific locations in order to reduce overall negative impacts of development and to concentrate infrastructure to reduce the need to rebuild it. Additionally, I-EA-T serves as a mechanism to decentralize development to the provincial levels throughout Thailand.[83]

Department of Industrial Works

The Department of Industrial Works (DIW) was established in 1942 with the task to specifically support government-owned factories. They provide procedures and ensure compliance with the Factory Act B.E. 1992, Machinery Registration Act B.E. 2514, and the Hazardous Substance Act B.E. 2535.[84] DIW does not have full jurisdiction within industrial estates, therefore, regulation of these areas are controlled by the I-EA-T while areas outside of I-EA-T zones are regulated by DIW.[85] Both DIW and I-EA-T are under the Ministry of Industry, thus any conflicts that may arise are handled internally by the Ministry of Industry.

77 Applying for and Granting of Promotion. Investment Promotion Act 2520 (1977). § 19. Ch 2.

78 Criteria for Project Approval. Announcement of the Board of Investment No. 2 /2557 Policies and Criteria for Investment Promotion. 2557 (2014). §6.2.1

79 ibid, §6.2.2

80 ibid, §6.2.3

81 BOI, "Thailand Board of Investment guide on environmental regulations (Final v2)". *Board of Investors*.(2014). http://www.boi.go.th/upload/content/ENVIRONMENTAL%20.EGULATIONS_28083.pdf

82 see website: I-EA-T. http://www.ieat.go.th/en

83 for additional information on I-EA-T regulation see http://www.ieat.go.th/en/laws-and-regulations

84 Department of Industrial Works. http://www.diw.go.th

85 DIW. personal communication. August 24, 2017; I-EA-T, personal communication, August 24, 2017.

ONEP

The Office of the Natural Resources and Environmental Policy and Planning (ONEP) is part of the Ministry of natural resources. The role of ONEP is to develop environmental and natural resource conservation policies and plans, monitors, and assess environmental impact mitigation measures.[86] The policies created by ONEP are applicable to I-EA-T projects.

These regulatory bodies and the legislation they develop are important to understanding MTP's environmental governance challenges. However, they make up only a fraction of the environmental governance landscape.

Defining Risk:

A recurring theme is the perception of risk in the region by the stakeholders. Development in any form will always have some degree of risk for economy, environment, or communities. Environmental risk is defined as the level to which pollution is harmful and to what extent people are exposed to pollutants.[87] Regardless of efforts made, community risk cannot be reduced to zero and must aim for coexistence with environmental risk while reducing them to within an allowable range.[88] This sentiment is echoed by government and businesses alike. After all, impact assessments are used to better understand the risks to businesses, environment, or communities in an attempt to mitigate future risks.

The risk for governments and investors come in the form of cost. Domestic policies impact decision making and where to invest is dependent on risks associated with tax or leniency in regulations.[89] Direct evidence of Thailand's risk assessment is in moving environmentally and socially destructive industries to countries with less regulatory oversight. This move allows Thailand to bring greener technologies domestically.

The context through which society understand and perceive risk is crucial in analyzing the changes in environmental governance. Do they accept or reject the authority? Who do they view as responsible? What risk must be weighed if they challenge authority? Such questions must be considered by communities who consider challenging development. So, despite plans to promote eco-industrial villages, a legacy of distrust and suspicion continues to impact the levels of risk a community is willing to accept. There continues to be a strong negative opinion about proximity to the industrial estates MTP.[90] Negative opinions towards the industrial estate are a direct result of the perceived nature of the risk that faces the community and, unsurprisingly, that perceived risk is similar to the degrees of risk estimated by experts.[91] Acceptance of these risk may also be related to the perceived benefits. An example would be acceptance of risk with the expectation of compensation. Therefore, simply give compensation without demonstrating an initiative to minimize risks can lead to failures in trust building and projects.[92]

The acceptance or rejection of risk by the communities in Rayong is closely connected to trust. Breaches of trust that occurred in the past are still seen as major points of contention in MTP. Businesses often view

86 ONEP. http://www.onep.go.th

87 Suzuki, Tomomi , Shusaku Akari, Kotaro Teranishi, & Satoshi Fujii, "Environmental Monitoring System for Map Ta Phut Industrial Estate in Thailand", *Fujitsu Sci. Tech. Journal* , Vol. 50 (3). (2014):16-23.

88 ibid

89 Dorsch, Michael T., Fergal Mccann, and Eoin F. Mcguirk, "Democratic Accountability, Regulation and Inward Investment Policy. Economics and Politics", Vol 26 (2). (2014), pg 263-284, John Wiley & Sons Ltd.

90 Pinyochatchinda, Supaporn and John Walsh, "Pollution Management and Industrial Estates: Perceptions of Residents in the Vicinity of Map Ta Phut Industrial Estate, Thailand", *Information Management and Business Review*, Vol. 6 (1), (2014): 42-48.

91 ibid

92 ibid

NGOs and CSOs as disruptors of progress, raising unnecessary or trivial issues to the national psyche. "Environmental impacts are an old story, we use new technology that is clean. It has less environmental impacts".[93] Businesses also blame these groups for encouraging complaints regardless of actual connections to the businesses that receive the complaints.[94]

PTT LNG state that complaints are increasing but that "zero official complaints have been recorded".[95] They further justify receiving zero complaints by claiming complaints are unrelated to their operation or are of little significance - such as off-gas events, necessary safety flare events that reduce gas buildup and unsafe pressure, or the occasional unpleasant smells from unidentifiable producers.[96]

A local human rights lawyer spoke in an interview stating legal action against businesses in Map Tha Phut has risen significantly in the wake of the 2009 court ruling.[97] They continued by suggesting this has become a strategy to elicit a response from an otherwise silent business. Another human rights activist suggests that protests are the only tool left available to local communities, indicating that continued health problems and environmental degradation prove a lack of willingness to act by business and government.[98]

In fact, local community leaders still reference the 1997 air pollution event as a massive failure on the side of the government and businesses to protect the community.[99] Distrust is then reinforced by the subsequent human health and environmental catastrophes that occurred in the region as recently as 2014. This fuels the communities' belief that businesses are indifferent to public safety and that the government is not adequately protecting their rights.

Corporate Social Responsibility:

One method businesses use to counter the negative perception of their presence and work is through the use of cooperate social responsibility (CSR) strategies. Many businesses in the I-EA-T, such as PTT and SCG, use CSR as a method for engagement and trust building with the communities. CSR is voluntary and conducted at the businesses expense. However, it is also important to recognize that CSR is also meant to improve the image of a business in the eyes of the local communities they engage with, the general public, and with the investors. With this perspective, there is little wonder for why communities would believe CSR is simply a marketing tool. This latter point is an important distinction, especially where CSR is being used post-catastrophe verses as a preemptive relationship-building strategy.

A local community leader in MTP suggested that the businesses who have engaged with their community in CSR activities are doing so with ulterior motives.[100] The community had participated in research and raised concerns to businesses about increased cancer levels and death rates associated with the petrochemical industry. In response, the businesses came to the community and offered alternative methods to their current farming practices. While the methods suggested by the businesses in the CSR project are scientifically sound and environmentally beneficial, the project was not received well by the community leaders. Instead, this was seen as blaming the farmers and their methods as the cause of their health problems. There is some truth to this viewpoint held by the communities. No evidence was provided to communities that indicated farming

93 I-EA-T, personal com, 2017
94 PTT LNG, personal com, 2017
95 ibid
96 ibid
97 EFN, personal com, 2017
98 EARTH, personal com, 2017
99 Community Leader A, personal communication, August 24, 2017
100 ibid

practices were the cause of health issues, while past research by organizations and academics had shown evidence of connections of health and industry.[101]

By engaging after detrimental environmental or human health events, the perceived intentions of CSR activities are seen as malevolent attempts to persuade an impacted community. This, in turn, can lead to the use of less impactful CSR activities such as inviting communities to visit factories or conducting open houses. The latter activities were reported by all the businesses interviewed as a key local CSR strategy.

Another CSR strategy used by businesses is in compensation following industrial disasters. Citing ethical and internal policy reasons, businesses do not give compensation directly to individual community members who are negatively impacted by business activities.[102] Instead, some businesses contribute to a pool of funding that goes directly to community leaders.[103] The leaders are then responsible for disbursing funds or using the funds for the benefit of the community. However, this practice leads to a number of issues. For one, it displaces responsibility of seeking solutions from the businesses causing the problems to the community and their leaders. In doing this the causes of the problems are never actually addressed and acceptance of blame is not often formally recognized.

Secondly, this style of engagement can lead to corruption and distrust of some community leaders. A representative we spoke with was not formally recognized through a community election was viewed as a champion for the community through public participation and organizing public activities. This community leader stated that their elected community leader fails to adequately support their community through the funds.[104] This is not an isolated event either. Other leaders have stated that they are pressured to contribute funds towards unneeded and unrelated projects such as building community buildings to host future meetings or on projects unrelated to alleviating the health or environmental problems.[105]

Monitoring:

Data appears to be another area of contention between communities and businesses. Monitoring and reporting responsibilities fall on businesses and rely heavily on self-reporting accuracy.[106] Self-reporting is conducted by 3rd party reviews and are paid for by the businesses that need to report on compliance. These are then submitted to I-EA-T and/or ONEP. According to I-EA-T, this includes a report every six months as required by the EIA process.[107]

I-EA-T gives an example of successful self-reporting but only as a response to community complaints. GPS use is now required on waste trucks and that reports are made every month by a 3rd party on the waste contents, and presumably, their routes.[108] However, monitoring of the data and reports are not conducted nor created by DIW or I-EA-T. Instead, they are only self-reported and the 3rd party reviewers are hired by the companies.

This requires communities to have a tremendous amount of trust in the policy and enforcement of the policies that simply does not exist. This also relies entirely on trusting the 3rd part reviewers to act in the

101 ibid
102 PTT, personal communication, August 9, 2017
103 Com Leader. A, personal com, 2017
104 ibid
105 Community Leader B, personal communication, August 23, 2017
106 I-EA-T, personal com, 2017
107 ibid
108 ibid

interest of seeking truth in data rather than solely in the interest of the business that hired them. This conflict is mirrored in the discussion with an environmental consulting firm. When speaking about the challenges of providing information to communities they are obligated to ensure the information is first passed through the business filters and ensure the information is not damaging to the hiring business. [109]

When speaking with I-EA-T about their role within the EEC, they described themselves as both regulators (especially with VOCs) and with being responsible for finding investors.[110] This poses a conflict of sorts as well. In being responsible for enforcing regulations I-EA-T must carefully monitor businesses, waste produced, and pollution present. However, being responsible for finding investors poses a risk to communities should I-EA-T choose economic success over community concerns or environmental safety.[111] With evidence that the government priorities are focused more on economic success over communities and the environment, the concerns here are not unfounded.

Information and Transparency:

Another common complaint is how businesses provide information and data to the community. Real-time data is collected from throughout the industrial estate using monitoring systems and through the use of a mobile unit. This information is then uploaded for public access on the internet and on scrolling boards along the highway.

There are a few problems with this information. First, it remains unclear to the communities why these locations were selected. Additionally, the data on the internet is raw data and not consumable for the general public. Output numbers are not interpreted in any meaningful way for community members and they require higher levels of education to draw meaning in them. The same is true for the public sign, though attempts at interpretation through various coding methods such as color indicators or faces with emotions are present. However, the community views this as lacking meaningful interpretation. A common fear was that the numbers were not representative of the real situation because the indicators never changed and always represented safe/happy levels.

A number of other problems exist with the sign. While the signs are present throughout MTP, they are not always placed in high trafficked locations or at intersections. Some signs are visible from one side of the road but not the other. Fonts used on some signs are small and can only be read when in close proximity to the sign or at a stop. In one instance, the sign was blocked by other signs or not functioning at all. All these issues make the use of the public signs ineffective as information sharing tools.

Complaints of transparency in the decision-making process and the implementation of policy is a recurring theme throughout the interviews among the CSOs and community leaders. When discussing EEC policy impacts one CSO representative commented that his community was invited to participate in the decision-making process because they would be directly impacted. However, they later found out that major project decisions were already made before their invitation and thus their inputs were only formalities. Additionally, they were told the projects were going ahead regardless of what the community says as the community was seen as "causing too much delay in the process".

Other issues in transparency occur with access to environmental impact assessments or environmental and health impact assessments. EIAs and EHIAs are a requirement under the BOI guidelines. However, such

109 AECOM, personal communication, August 9, 2017
110 I-EA-T, personal com, 2017
111 Com Leader. A, personal com, 2017

data has been difficult to obtain. While these assessments are expected to be distributed to the public they are often only in the form of summaries or made available upon approval of the results by the company. Digital access continues to be a challenge. Specific EIAs and EHIAs produced by companies in MTP were not available online at the time of writing. Additionally, the EIA page on the I-EA-T website (in both languages) failed to provide information aside from general knowledge. While this may be a result of searches conducted primarily in English, the World Research Institute expressed similar concerns to transparency and access in 2012 and treated the assessments as preparatory information that requires permission from the company that sponsored the assessment.[112]

Businesses discuss combating transparency complaints by holding open houses, allowing site visits, and conducting frequent meetings with communities and their leaders. These practices are a part of many businesses in Map Tha Phut even before the 2009 court cause. For PTT and SCG, these responsibilities have been taken on by their CSR teams and while these events are an important strategy for transparency a few issues were voiced by the community. A number of interviewees commented that these events are often held strategically during inopportune times. Often a community member would have to decide between generating income (fishing, farming, etc.) or attend a meeting where the only benefit was to make the business look better.[113]

Section 44:

Section 44 (S44) of the current constitution states:

> "for the sake of the reforms in any field, the promotion of love and harmony amongst the people in the nation, or the prevention, abatement or suppression of any act detrimental to national order or security, royal throne, national economy or public administration, whether the act occurs inside or outside the kingdom". The orders so issued are all deemed "lawful, constitutional and final"[114]

This is not an uncommon strategy used by many governments throughout the world, especially as it relates to land use. In many ways, this is similar to the common practice of eminent domain which is the power to take private property for public use by a state, municipality, or private person or corporation authorized to exercise functions of public character, following the payment of just compensation to the owner of that property.

Organizations and community leaders have suggested that the broad definitions in S44 allow for the indiscriminate use of the statute to further develop MTP and the EEC. Many have voiced concerns that S44 is used to justify lack of compensation, to prevent or avoid required public participation, and to buy pass environmental requirements found in the EIA or EHIA.[115]

RECOMMENDATIONS

- **Trust building between all stakeholders but specifically between NGOs, CSOs, and businesses.** Better partnerships between community organizations, individual community members,

112 Excell, Carolle, "Can Access to Information Protect Communities from Pollution? A Lesson from Map Ta Phut, Thailand", *World Resources Institute,*(2012). https://www.wri.org/blog/2012/09/can-access-information-protect-communities-pollution-lesson-map-ta-phut-thailand

113 Com Leader. A, personal com, 2017; Com Leader. B, personal com, 2017; EFN, personal com, 2017

114 2557 (2014) Interim Constitution of Thailand §44

115 EFN, personal com, 2017

and businesses need to be forged. These partnerships can be built through the financial support of business CSR programs. Rather than working independently with communities, businesses should seek to partner with local civil society organizations and actively seek their inputs to be more effective. Due to the importance of community involvement, participation times based on community availability is important. As it stands, communities view existing meeting times as not beneficial as it takes away from their livelihoods commitments.

- **Conduct CSR as a preemptive measure to avoid problems in relationships in the future.** CSR projects should actively seek to identify potential future pressure points on community relations and preemptively seek to address these issues. A preemptive CSR strategy that shows potential, though was not explored deeply in this research, was in PTT LNGs strategy to participate in fish nurseries and fish/crab stock releases prior to project start (PTT LNG, personal communication, August 23, 2017). This was done following concerns about their expansion and the impacts it could have on the fisheries and ecosystems. Rather than waiting until after the fishing communities were impacted, PTT LNG preemptively started a CSR project to address these concerns.
- **Don't rely entirely on self-reporting and have better oversight of 3rd party assessments** Self-reporting is a necessary and inevitable part of monitoring. However, full reliance on this method can lead to significant problems. An example of this was stated by I-EA-T that they are fully responsible for accepting and rejecting expansion plans and yet, to-date, they have not had a need to reject a single plan (I-EA-T, personal communication, August 24, 2017). Similarly, better oversight of 3rd party reviewers is needed. A potential solution to this is through altering the reporting structure. Rather than reports being submitted by the businesses, have third-party assessors directly submit to the relevant government agencies. This would ensure unadulterated information.
- **Unannounced operation and compliance checks by I-EA-T and DIW.** I-EA-T spoke about ensuring businesses are complying using two main mechanisms - self-reporting and site visits. However, site visits were always announced beforehand and businesses were given months in advance notice. Providing advance notice prevents I-EA-T from seeing the day to day processes and creates a potential bias in favor of the business. Unannounced visits would help to ensure policies that are in place are followed and help build trust with communities that the government is actively engaged in their safety.
- **Provide meaningful data and include community participate in data collection.** An important component of environmental governance is community participation. Ensure communities have the knowledge and tools to gather and assess environmental information on their own. One way to build trust is to encourage community participation in data collection. Equally important is the ability for communities to make informed decisions based on useful data One feature available on most MTP business websites is a whistle-blowing mechanism. However, in order to submit complaints, personal data is required. Whistleblowing mechanisms need to be made anonymously to encourage its use and to reduce fears of retaliation from businesses.
- **Clearer justifications for use of Section 44 and other eminent domain type laws.** Eminent domain laws are the right of a county. However greater transparency for why and when they are used is necessary. When such powers are exercised by the State due process, public participation, appropriate compensation, and EIA/EHIA requirements must still be fulfilled.

CONCLUSION

Since 2009, clearer regulations have been defined as demonstrated above. Environmental regulations created by the various governing bodies and highlighted through guidelines for investment show a progression of adaption by the government. This also shows a continual improvement in environmental governance from the policy creation side. And yet, a commonality among the literature is the call for stronger policies. The interpretation of the 2007 Constitution remains unclear by practitioners and communities. The

literature argues the division of EIA and EHIA requirements provide a loop-hole to avoid dialogue or community participation.[116]

However, policies themselves may not be the main issue at hand. Instead, enforcement of existing policies, public participation, and stronger community engagement in all stages of the development need to be addressed. Furthermore, the strategies used by government agencies and businesses for community engagement have failed to adequately assess community needs. This raises a critical question of whether or not this type of development is wanted by communities or the country as a whole.

Finally, throughout the discussions, there was little mention of dealing with existing contamination and pollution. Regulations and policy to prevent future environmental contamination through investment restrictions is only a small piece of the environmental and social landscape. Safeguards, cleanup plans, and well-defined responsibility mechanisms need to be in place and understood by all parties. This will reinforce existing pollution prevention policies.

116 Boonlong, Raine, et al. "Representation and Who Decides in Environment Planning (with an Emphasis on energy Technologies)", *ECCAP WG4 Report* , UNESCO. (Bangkok, 2009) : 15 – 40; Tremblay, Jean-François, "An Impasse Grows In Thailand: Political instability stops construction at chemical plants worth billions of dollars". *Chemical and Engineering News*. Vol (88). issue 12, (2010): 26-28. https://cen.acs.org/articles/88/i12/Impasse-Grows-Thailand.html