

# RE-SETTING SUSTAINABILITY AMIDST THE COVID-19 PANDEMIC: A SYSTEM THINKING-BASED PRELIMINARY ANALYSIS OF THE TWO SPECIAL ECONOMIC ZONES IN MAINLAND SOUTHEAST ASIA

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Special Economic Zones (SEZs) are a common policy instrument used by governments globally, but most significantly in developing countries, to achieve a number of targets ranging from attracting Foreign Direct Investments (FDI) in the country to spurring socio-economic development. However, to what extent are SEZs socially and environmentally sustainable? Governments in developing countries across East Asia have established SEZs since the 1960s, and have supported their transformation in specialized and innovation-driven manufacturing and service areas. According to a 2019 UNCTAD Report, there are 737 in Southeast Asia, particularly in the Greater Mekong Subregion (GMS). Here, industrial and infrastructural development remains key to consolidating local political leaderships. In fact, this chapter will argue that SEZs can be seen as “abstract spaces” aimed at governing and at supporting capital reproduction in a context of global standardization. The cases of Thilawa in Myanmar and Van Don in Northern Vietnam will be analyzed.

**Keywords:** Vietnam, SEZs, Myanmar, Greater Mekong Subregion, sustainability, COVID-19

## 1. Introduction<sup>1</sup>

In recent years, mainland Southeast Asia has become a particularly attractive region as more SEZs have been built across the Greater Mekong Subregion (GMS) economic corridors since the mid-2000s (Giang and Ishida 2012; Ishida 2015; UNCTAD 2020).

As manufacturing and logistics hubs at the intersection of global value chains, special economic zones (SEZ) are to some extent the epitome of current trends in the global economy. In fact, (a) they are largely conceived for domestic and foreign capital restructuring and short-term profit-maximization (Bräutigam, Farole, and Tang 2010; Bräutigam and Tang 2011); and therefore (b) they must rely on stable resource inputs from outside (capital, raw materials or manufactured goods, and labor) (Thanh, Lebailly, and Dien 2018). Scholars have long debated on how to assess SEZs' actual economic performance and contribution to a nation's overall socio-economic development, raising doubts about governments' often bombastic announcements regarding the effectiveness of SEZs as policy tools (Farole and Akinici 2011, 17–20; Frick, Rodríguez-Pose, and Wong 2018; UNCTAD 2019). On top of this, in recent years, the SEZ-based model of economic development has been increasingly associated with the concept of sustainability, conceived in its economic, social and environmental dimensions. References to the idea of "sustainability" or to the UN Sustainable Development Goals (SDG) in SEZs development plans have become common (see hereafter).

It is clear, however, that the COVID-19 pandemic has highlighted the vulnerabilities of global supply chains and, by and large, of their economic and social sustainability, particularly in light of the restrictive measures that national governments across the globe have implemented to stop or control the spread of infections (Guan et al. 2020). Severe impacts and "shocks" have reverberated across a broad range of organizations and activities (Sarkis 2020), with major consequences on manufacturing, agriculture and global food supply chains (Aday and Aday 2020; Rizou et al. 2020; Barman, Das, and De 2021) and services like tourism and catering (Cristiano and Gonella 2020; Guan et al. 2020). Millions of workers in export-led and service-oriented economies in East and Southeast Asia, such as Myanmar and Vietnam which are central to the present discussion, have been affected by restrictions, including manufacturing hubs in special economic zones and industrial parks (Guan et al. 2020; Onishi 2021; Jin et al. 2020). Contingent disruptions add up to structural problems that have been pointed out by scholars, international

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organizations and advocacy groups over the years. First, recent large-scale comparative analyses have in fact demonstrated that SEZ growth is hardly economically sustainable in the long-run (Frick, Rodríguez-Pose, and Wong 2018, 38). Second, international organizations have denounced poor labor and environmental practices in SEZs, particularly in EPZs. The International Labor Organization (ILO) has raised concerns about extensive labor rights violations (such as low wages, extreme working hours), contempt for workers' safety and health, and gender discrimination. The ILO has called for governments to include specific "labor provisions in trade and investment agreements," highlighting the importance of social development and environmental sustainability when drafting EPZ policies, and to make "concerted efforts [...] to promote policy coherence at the international level," particularly on "the protection of human rights" in compliance with the United Nations (UN) Sustainable Development Goals (SDGs), the Addis Ababa Action Agenda on financing for development and the UN Guiding Principles on Business and Human Rights (International Labour Organization 2017, 42). On the environmental end, although the 2015 UNCTAD Guidelines on Sustainable Economic Zones may have had an impact in pushing SEZ developers and operators towards including environmental, social and governance (ESG) targets in their policies (UNCTAD 2019, 188–89), recent analyses on China and Thailand underscore the broader environmental impact of SEZs in terms of air pollution, unregulated waste disposal, and increased pressure on forest and water resources (Open Development Thailand 2019; Land Watch Thai 2021; Martin and Zhang 2021). In light of these facts, it is possible to assume that national governments promote the idea that SME's are integral parts of their strategies to achieve "sustainability." They do so in fact also to promote certain paradigm of development that might mask merely political projects based on notions of managerial efficiency and profitability which end up disempowering local communities, particularly in low-income countries (Banerjee 2003) or serve as a palliative to systemic crises (Cristiano 2018a, 10).

In light of these facts, is it possible to deconstruct the idea of sustainability with regard to SEZs? How can we squarely assess the sustainability of existing SEZs? Adopting a System Thinking (ST)-based epistemology might help to expose vulnerabilities and political biases inherent to these "produced spaces" (Lefebvre 1991). This approach is in fact rooted in the awareness that the human economy and society are subsystems of a finite global ecosystem (Daly 1990, 1), i.e., it offers a holistic perspective on sustainability, thus, repudiating the distinction between the three dimensions of sustainability (economic, social, and environmental) (Kuhlman and Farrington 2010). In this preliminary analysis, by adopting the ecosystem analysis proposed by Cristiano and Gonella (Cristiano and Gonella 2020), we aim at providing a new analytical framework to assess the sustainability of SEZs in developing countries. Being preliminary in scope, this chapter will discuss the existing

literature and be limited to presenting an early assessment of two cases which are referred to below, the Thilawa (Myanmar) and Van Don (Vietnam) SEZs. These two cases, which have been partially discussed elsewhere (Zappa 2021; 2022), are instrumental to the present discussion in so far as they bear resemblance to and present several vulnerabilities shared not just by other SEZs in semi-democratic or authoritarian institutional contexts, but, for instance, by tourist cities in advanced European democracies. In this sense, the state's attempt to completely abstract these *locales* from nature and the biosphere and to materialize economic monocultures overlooking local practices and knowledge is striking, regardless of the broader institutional setting. The case-studies will provide useful insights and test the hypotheses elucidated hereafter. In the following paragraph, a summary of the definitions, typologies, and history of SEZs will be offered.

## 2. Defining SEZs

For decades now, SEZs have been the epitome of economic transformations in East Asia, contributing to poverty alleviation and improving living standards, however, at a high environmental cost (Richardson 2004, 152–154). In the wake of the 1980s and mid-1990s waves of deregulation and liberalization of trade and investments,<sup>2</sup> SEZs have emerged as an important tool of economic governance in the region and globally. According to the United Nations Conference on Trade and Development (UNCTAD), today there are 5,400 SEZs in 147 countries. More than 1,000 were established between 2014 and 2019 and at least 500 more will be established in the coming years (UNCTAD 2019, 128; 2020, 149).

Though SEZs are more common in developing economies, developed countries have resorted to SEZs to foster economic growth or recovery in less advanced regions through, among the other possibilities, foreign capital attraction (Frick, Rodríguez-Pose, and Wong 2018, 1; Manti 2019; Hinohara 2019). Among the first to adopt this policy tool in the 1960s were the governments of South Korea and Taiwan in order to promote export-oriented manufacturing in specifically designated areas (Richardson 2004, 159–60).

Historical developments have been widely explored. Suffice it to say here that SEZs are generally defined as

geographically or juridically bounded areas designated by governments  
for foreign investment and export-oriented industrialization, to which

<sup>2</sup> Trends toward trade and investment liberalization and, consequently, market regulation in the 1980s were particularly important in the People's Republic of China. IFI (WB and IMF)-led restructuring aimed at promoting further liberalization in the aftermath of the Asian Currency and Financial Crisis mostly regarded Indonesia, Malaysia, and Thailand (Richardson 2004; Beeson and Islam 2005).

are conceded favorable investment and trade conditions and reduced red-tape (Richardson 2004, 160).

Given their growing relevance to economic development policies in East Asia, International Financial Institutions (IFIs), such as the World Bank (WB) have further elaborated on this definition adding standard measures (10-300 hectares), methods of border demarcation ("fenced") and activities commonly carried out within them ("manufacturing for export") (Richardson 2004, 161). One updated definition reads as follows:

Designated areas where business activity is subject to different rules from those prevailing in the national territory [...] These distinct, (and often laxer) rules are intended to create a business environment [...] more liberal from a policy perspective and more efficient from an administrative perspective (Farole 2011 in OECD 2020).

SEZs also tend to be served by dedicated infrastructures, from transport to energy and water supply (Frick, Rodríguez-Pose, and Wong 2018, 2; UNCTAD 2019). Interestingly, beside its territoriality, *ad hoc* laws and regulations and administrative autonomy are what distinguish SEZs from the rest of the national territory out of which they are carved (Richardson 2004, 162).

Despite various attempts at defining what a SEZ is and what it should look like, the reality on the ground has led experts and practitioners to adopt a more flexible descriptive approach. First, export processing zones (EPZs), i.e., a type of SEZ which, as indicated above, became a common policy tool in East Asia since the 1960s, have been gradually replaced or integrated by "large-scale SEZs" combining "residential and multi-use commercial and industrial activity" (Farole and Akinci 2011, 3). Outlining their aim and scope, Farole and Akinci point at several factors such as (a) foreign investment attraction; (b) large-scale unemployment alleviation; (c) wider economic reform strategy support; (d) new policies and approaches experimentation. Further SEZ diversification based on one economy's income group has been noted.

High- and upper middle-income economies tend to concentrate resources in the establishment of logistics, innovation and technology, research and development, high-tech, biotech, financial services, and health-based facilities, while middle- and low-income ones tend to establish global value chain (GVC)-intensive industries (automotive and electronics), services (call centers), multi-activity and resource-based zones aimed at attracting processing industries (mining, timber, oil and gas extraction) (UNCTAD 2019, 140–41). In addition to this classification, a growing number of SEZs in non-traditional sectors have emerged. For example, tourism-focused SEZs have emerged from Eastern Europe to South-east Asia (UNCTAD 2019, 152). Here, in particular, the number of border gate

economic zones (BGEZ) on the borders with China or at the intersections of the main economic corridors in the Greater Mekong Subregion (GMS) have been on the rise since the mid-1990s (Tam 2019; Raymond 2021; Asian Development Bank 2018). Lastly, faced with new challenges such as COVID-19, a growing number of high-income countries, for instance, have invested in health-related facilities (UNCTAD 2021, 139–40). For these reasons, one might be right to stress that SEZs' attractiveness is undiminished (Farole and Akinci 2011, 5).

One reason for the proliferation of SEZs in Southeast Asia is probably the increased global and regional trade following China's accession to the World Trade Organization (WTO) in 2001 (Agarwal and Wu 2004). Trade interconnectedness has been boosted by subsequent bilateral and regional trade agreements, and, more recently, by new trans-regional and transcontinental partnerships such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP), which entered into force in late 2018 and early 2022, respectively. In this context, national governments have become 'catalysts' of their national economies' internationalization by creating or strengthening inter-state coalitions or state-business alliances which ultimately enhance the state's control capability over the economy and security (Weiss 1997, 25–26). As the product of negotiations and converging interests between public and private actors, not necessarily based in the same national territory, SEZs can be interpreted as the product of power sharing arrangements within one national or regional economy, in which the state plays the role of a catalyst of financial and other resources (including labor), and information (such as rules and regulations).

### **3. Sustainable SEZs or "abstract" spaces? Some reflections in light of the COVID-19 pandemic and climate emergency**

In light of the above, SEZs have deeper political implications. First, they are the byproduct of a modern capitalist "rationality" that treats nature as a mere raw material out of which "abstract spaces," homogeneous only in appearance, are formed (Lefebvre 1991, 288). Second, in these "simplified" areas, state officials and economists have a greater leeway to promote models of development and enact specific policies that best suit their regimes' objectives such as those aimed at favoring economic growth (Lefebvre 1991, 328; Scott 2020).

Nevertheless, in recent years, a tendency to link SEZs to the idea of sustainability in the international public discourse can be observed (UNCTAD 2019; 2020; 2021). Although SEZs' inherent contradictions have become apparent in recent years, multilateral organizations abstain from offering a structural critique of the status quo. Instead, they have been supportive of the creation of new types of SEZs such as the SDG

model zones conceived to attract investments in SDG-relevant activities, adopting the highest international standards in terms of environmental, social and corporate governance (ESG), and producing inclusive growth (UNCTAD 2019, xii). Practical steps toward the creation of SEZs that could “work for the SDGs” have been taken recently by the United Nations Conference on Trade and Development (UNCTAD) which in 2022 has sponsored the Global Alliance of Special Economic Zones (GASEZ) along with several associations representing 7,000 SEZs from across the globe (World Investment Forum 2023), however, as opposed to traditional SEZs as characterized above, the incentives for public and private actors to create SDG model zones appears limited to “global exchange of experience and good practices” and a yet vague contribution to “sustainable development” (UNCTAD 2019, 29–30). In some literature on SEZs, this idiom is often *acritically* associated with concepts such as economic growth and “carbon neutrality” as a marker of a higher-quality growth enabled by new technologies (Liu et al. 2022). However, adopting an ecological economics perspective, “sustainability” and “growth” are two clashing concepts. Particularly, the idea of “sustainability-through-technology” does not fit in a more comprehensive and holistic theorization of sustainability offered, for instance, by Daly (1990; 1996). According to the “father” of ecological economics, sustainability cannot be expressed in terms of income, or gross national product, parameters that do not consider the finiteness of our natural environment. Rather, it has to be conceived based on a different view of the economy as an “open subsystem” of the finite natural ecosystem which is therefore subject to physical rules such as mass balance, entropy and finitude (Daly 1996, 48). In this theorization, “sustainability” can be defined as the property of economic phenomena such as population and production growth (i.e., quantitative scale expansion) and economic development (qualitative improvement) that stay within the boundaries of the earth’s capacity to regenerate resource and absorb waste. Since 2020, the COVID-19 pandemic has once again stressed the complementarity between human socio-economic systems and natural environments and at the same time the anachronisms of several pre-2020 institutions and worldviews (Sarkis 2020, 63; 2020, 70; Cristiano 2018a, 12–15; Kuhlman and Farrington 2010). In other words, given that it likely originated from the exploitation of non-humans by humans, the current pandemic awakens us to the fact that our modern neoliberal societies are built upon the “denial that human societies and their economies are part of the environment” (Cristiano 2018a, 15).

Similar to all human systems (such as cities and industrial parks), in fact, SEZs operate at high intensity based on the inflows and stocks of resources (energy, information, labor, etc.) available and resulting outputs (heat and waste) released in the biosphere (Odum 2007, 9; Geng et al. 2010, 5275). Modern and contemporary industrial economies rely largely on the input of fossil fuels and the capacity for energy production and storage. Systems operating under such conditions suffer from

a fundamental imbalance between the volume of emissions (carbon dioxide, metabolic water and inorganic wastes) and the pace of their incorporation into organic matter by photosynthesis (Odum 2007, 9). Historically, these systems have grown at a speed proportional to the availability and concentration of energy (Odum 2007, 46), but present contingencies (the increasing possibility of pandemics, regional armed conflicts and the climate emergency) and natural limitations to the availability of fossil fuels remind us of the “pulsing paradigm” which aptly describes human systems. After subsequent phases of overgrowth, complexity and diversity, the seemingly unlimited availability of high-quality energy produced through fossil fuels has generated a phase of “frenzied consumption” by a growing number of individuals eroding previous accumulations (Odum 2007, 55–59). Humankind finds itself at a time when its culmination has passed and it needs to “adapt to the future” (Odum and Odum 2008 in Cristiano and Gonella 2020, 3), one in which human output (crops, waste, etc.) forcibly equals natural regenerative and assimilative capacities (Daly 1990, 2–3).

Adopting this perspective means to refocus our attention from individual phenomena to a network of relations underneath it. As Cristiano and Gonella (2020) illustrate,

[ST] shifts the attention from the linear description of factual features of a system to the study of the structure of pattern configurations, resulting from the self-organised network of feedbacks that ultimately define the system stability, resilience, and adaptation capacity [...] in addition to an overall understanding of the operation of a given system, one of the main goals of a systems-based analysis is to find the material or immaterial systemic local sub-structures upon which the system depends, where an even very small change can affect the whole system. They represent the systemic places where to intervene, namely, the leverage points. (Cristiano and Gonella 2020, 3–4)

Methodologically, this approach favors the adoption of a mixed quantitative-qualitative approach to evaluate the sustainability and resilience of a single human system as it sheds light on the interconnectedness and interdependence between various actors and inflows and stocks of resources at various levels, and how their networks' configurations change over time based on specific policy orientations and actual choices (Cristiano and Gonella 2020; Geng et al. 2010; Zhe et al. 2016).

Fig. 1 and 2 better exemplify this methodology. Systems are circumscribed into boundaries crossed by inbound (factors, such as energy, resources, and information, which are considered external but influence the inner workings of a system) and outbound lines (degraded energy, processed materials, new information, and waste) ending up in the environment. Outside and within the system sources (circles), producers (square with one rounded end), storages (drops) and subsystems (squares) are represented. Energy, information and resources are conveyed

from sources to subsystems, stocks of resources, or other systems to perform specific works for which the system is designed through interactions (chevrons) and exchanges (dashed lines and diamonds). Degraded energy resulting from the completion of a process is then discharged into heat sinks and dispersed within the system or back into the environment.<sup>3</sup>

Fig. 1, elaborated by Geng et al. (2010), represents the system of an industrial park in Dalian, Northeastern China. It can be said that the diagram below fundamentally resembles the system of a EPZ as that of Thilawa, as will be shown in the following sections. The sea currents, deep heat, winds and the sun supply the system with energy for the marine ecosystem, local storage of seawater and air to help mitigate the impact of the system respiration (especially heat, and pollutants such as carbon and sulfur dioxide) on the local environment. Useful resources for the processing and manufacturing subsystem are brought into the system through energy-based interactions resulting in a certain amount of energy degradation. Money-based exchanges are key to favoring the inflow of essential services and labor to carry out the industrial process and the outflow of finished goods and waste toward the market and disposal facilities after treatment.

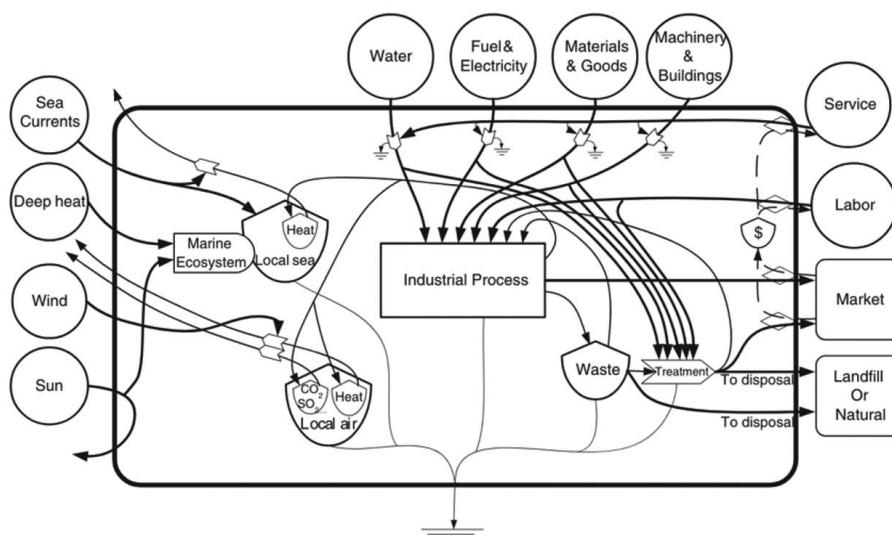


Figure 1: Dalian industrial park material flows diagram

(Source: Geng et al. 2010, 5276)

<sup>3</sup> A complete description of energy system symbols might be found in (Odum 2007, 26–27).

Fig. 2, designed by Cristiano and Gonella (2020), instead, illustrates with a higher degree of complexity the system of a tourist city, namely that of Venice, Italy. This model might, with a certain degree of reliability, resemble that of a large-scale tourism and leisure-based SEZ such as the proposed Van Don SEZ in Northeast Vietnam. In addition to flows of energy and material resources, this second diagram clearly identifies actors and activities proper to any city (such as its resident population, its cultural assets and local economy in part tied to a natural environment with specific features) in blue and highlights in red flows, stocks and interactions related to tourism, including efforts toward the construction of an appealing but rather artificial image of the city, or “place branding” (Anholt 2008; Cristiano and Gonella 2020, 6). In fact, immaterial factors such as these are arguably more relevant in tourism-leisure-oriented SEZs than in EPZs and their importance will likely keep growing in coming decades. Another important factor, highlighted in the diagram below, is the impact of tourism on the expulsion of aboriginal dwellers in the face of rising housing costs and disappearing local industries due to the reallocation of urban assets to the tourism industry. Given the impact of often indiscriminate land dispossession in Southeast Asia for the sake of SEZ development (Open Development Thailand 2019; Land Watch Thai 2021; Kuaycharoen et al. 2020), the outflow of dweller appears to be a relevant feature of both EPZs and multi-activity large-scale SEZs.

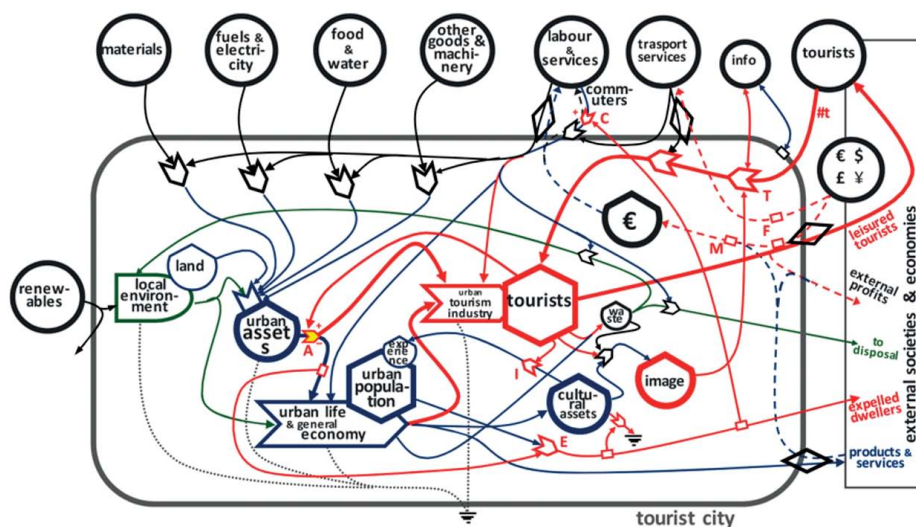


Figure 2: Systemic diagram of a tourist city (Venice)

(Source: Cristiano and Gonella 2020, 6)

The next section will focus on specific cases of SEZs (one an EPZ, the other a service-based large-scale SEZ) from two lower-middle income countries in continental Southeast Asia, such as Myanmar and Vietnam,<sup>4</sup> to better illustrate the contradictions which characterize some SEZs in the region in the light of the transformation brought about by the current pandemic and climate emergency.

## 4. An ST approach to the study of SEZs

In this section of the chapter, two case studies, those of the Thilawa SEZ in the Yangon region, Myanmar, and of the Van Don SEZ in Quang Ninh province, North-east Vietnam will be discussed in light of the theorization illustrated above. The reasons for this choice are as follows. First, they are situated in a relevant area of Southeast Asia, where competition and coordination between regional powers and economic powerhouses such as the People's Republic of China (PRC), Japan, the Republic of Korea (ROK) and Singapore are jostling for influence and (re)shaping regional economic arrangements (Goh 2016). Second, they are representative of SEZs' variety and therefore are exposed to different, though related, vulnerabilities. Third, the history of their respective planning and development has encountered several frictions that required an increased ratio of flows to overcome resistances and speed up the processes of SEZ development (such as forced dispossession, swift and partial compensation, etc.).

This latter point is worth stressing. Apart from social upheaval among local communities forced to resettle and insufficiently compensated (Gilmore 2016; Kyaw 2020) and migrant workers' protests (Myo 2020; Nguyen 2021; Phi 2021; Radio Free Asia 2021), SEZs have, in fact, caused institutional confusion in the policy making arena as governments struggle to regulate them while managing to attract tax revenues and reign in public debt (Aung 2013; Kuaycharoen et al. 2020; Ngoc 2019).

In the following sections, the two case-studies will be presented based on the available literature, particularly relying on local or international government agencies' and consultants' documents, reports and press articles. The two cases will be then used to discuss the applicability of the diagrams in Fig. 1 and 2 as descriptive tools.

### 4.1. The case of Thilawa, Myanmar

Thilawa SEZ, in Southwestern Myanmar, originally planned by the ruling military junta in 2010, has been the cornerstone of Japan-Myanmar cooperation since World War 2 (Strefford 2016; Chow and Easley 2016; Lam 2016).

<sup>4</sup> For a detailed classification, see (The World Bank n.d.).

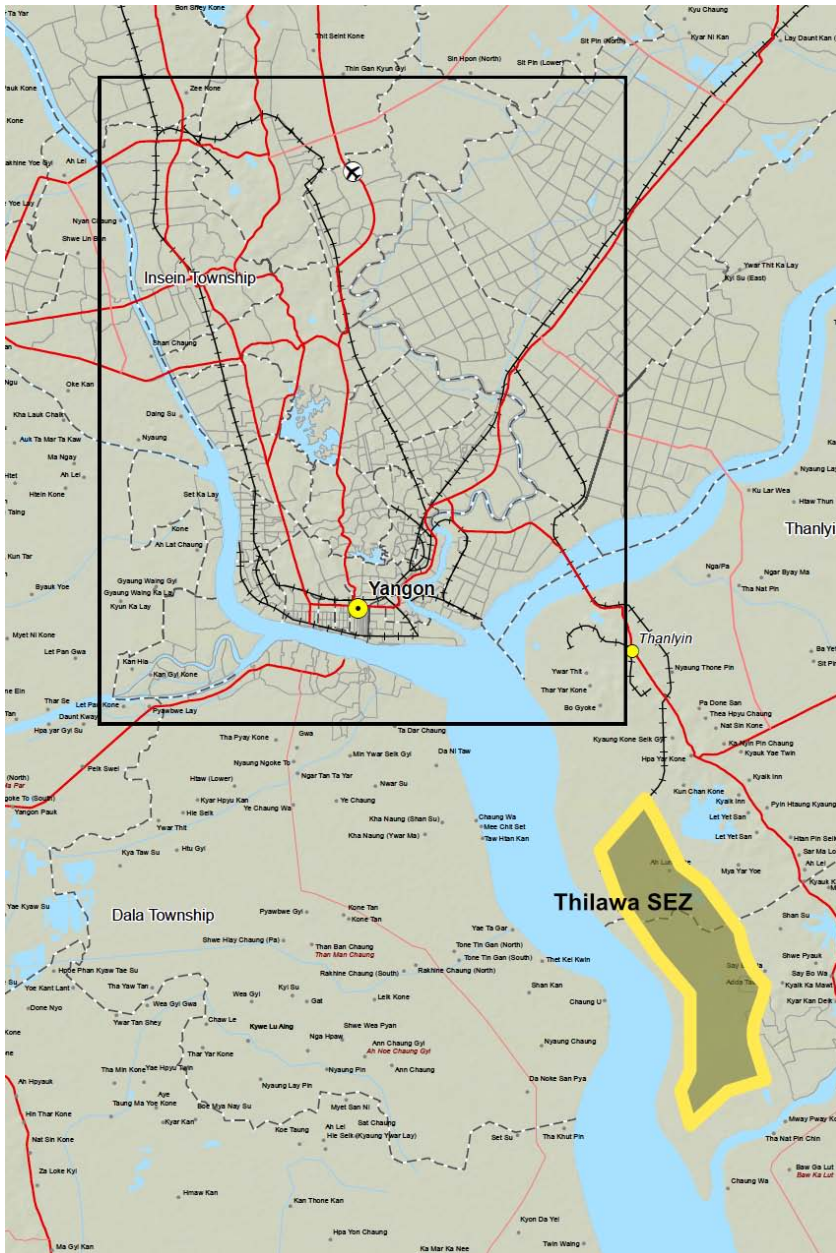


Figure 3: Map of the Thilawa SEZ

(Source: based on the Government of Myanmar, Information Management Unit, 2020 and JICA & Nippon Koei, 2019)

Located 20 km southeast of Yangon, at the confluence of two rivers, the Yangon and Bago and with a new port facility which connects it to seaborne trade routes in the Andaman Sea, Thilawa is the only fully operational SEZ in Myanmar. It covers an area of 2,400 hectares designated for manufacturing, logistics and commercial areas. The majority of the companies operating in the SEZ-designated area are active in garment and electronics manufacturing (more than 3,000 employees) while others are active in the services, packaging and food sectors (Khandelwal et al. 2018, 7). Since its inauguration in 2015, it has received US 760 million dollars in investments. Currently, there are 76 operating companies employing 20,000 workers, including 9,000 regular permanent workers (Aung 2016; JICA 2019; Lynn 2019). At its full capacity, the SEZ will accommodate more than 200,000 workers in manufacturing and services and 156,000 residents.

In terms of governance, Thilawa is a public-private partnership, in which the Burmese and Japanese governments through their managing agencies, the SEZ Managing Committee and the Japan International Cooperation Agency (JICA) hold 10% each of the stake while the remaining majority is split between several public and private actors, the most prominent of which are large Japanese conglomerates such as Marubeni, Mitsubishi and Sumitomo joint together in an investment partnership called MMS Thilawa Development Co. (Mitsubishi Corporation, Marubeni Corporation, and Sumitomo Corporation 2016).

Seizing the moment of Myanmar's timid democratization process initiated in 2011 after the dissolution of the military junta led by Senior General Than Shwe, the establishment of a semi-civilian government led by Prime Minister General Thein Sein, and U.S. engagement with the former "pariah state," Japanese governments led by the liberal Democratic Party of Japan (DPJ) first and then by the conservative Liberal-Democratic Party (LDP) approached the authorities in Naypyidaw with the promise of new aid packages, massive debt cancellation and new loans (Kudo 2014a; 2014b; Reilly 2013). As a result, in April 2012, the two countries signed a *Memorandum of Intent on Cooperation for the Development of a Master Plan for the Thilawa Special Economic Zone* (SEZ). The implementation phase started the following year, when, during a state visit to the country, Japanese Prime Minister Abe Shinzō, accompanied by dozens of company representatives from Japan, and his Myanmar counterpart signed a series of agreements aimed at promoting bilateral economic cooperation and, in particular, at improving people's livelihood and providing key infrastructures for sustainable economic growth (Ministry of Foreign Affairs of Japan 2013a; 2013b). The Japanese government through JICA has, for example, aided Naypyidaw in various forms dispatching its practitioners and experts. It has provided both infrastructural and intellectual aid, through loans for connectivity and energy infrastructure modernization feasibility studies, legal aid to help draft the country's 2014 SEZ law and the 2015 set of rules, and assistance

to former residents' relocations (JICA 2019; JICA and Nippon Koei Co., LTD. 2014; Government of Japan 2014).

Almost two decades before its inception in 2015, the designated SEZ area had been the object of one previous Burmese-Singaporean joint real estate project which never materialized. Residents, the majority of whom were employed seasonally in farming spending half of their available income on food, were dispossessed of the land first in 1996-1997 and again in 2013 with the beginning of the Phase 1 area construction works. In total, the Yangon Region Government calculated that more than 70 households, or nearly 400 people, needed to be relocated outside the SEZ-designated land (Zappa 2021, 287; Yangon Region Government 2013). In the authorities' plan, this outflow would be compensated with decent job opportunities, hygiene, safety and social welfare for urban skilled workers (JICA 2019; Yangon Region Government 2013, 32), in what can be seen as a state-led plan of "labor substitution" and "residents upgrade" (Zappa 2021, 289).

Considering these facts and of the discussion of the preceding sections, one could argue that one element of the vulnerability of the Thilawa project lies in its reliance on labor from outside, particularly from the nearby city of Yangon. Khandelwal et al. (2018, 6) show that a large majority of the Thilawa SEZ workers (67.5 %) had to commute between 30 min and 2 hours to reach their workplace. As shown in Fig. 2, the rearrangement of local assets following the adoption of certain policies may lead to the loss of major drivers of the local economy and to the gradual exclusion of former dwellers. In the case of Thilawa, dwellers' expulsion was an integral part of the implemented policy. Additional work had to be brought into the system by the state and its partners, in this case, Japan, in order to win possible resistances or "backforces" (Odum 2007), under the guise of police enforcement and cash relocation compensation.

As shown in Fig. 1, labor and services are essential to conveying energy and resources for industrial processes carried out in an EPZ-like SEZ. The drawbacks of expelling local residents and relying on an external workforce were all the more evident when Myanmar's Ministry of Health imposed stay-at-home restrictions to curb the spread of the COVID-19 epidemic (Htun et al. 2022). Data show that business closures have left hundreds of thousands out of their jobs with no regular income and the federal government's response has been inadequate and further hampered by the February 2021 military coup (CPIGH 2020, 10; ILO 2022). Furthermore, a constant supply of energy and fuel is also key to sustaining industrial processes within a given system. In October 2021, two China-backed Liquid Natural Gas (LNG) power plants in Thaketa Township (Southeast Yangon) and Thilawa, supplying energy to the country's largest city and environs, halted their operations citing their financial unsustainability due to their inability to afford LNG on the

international market in US dollars (The Irrawaddy 2021b).<sup>5</sup> The government has since announced that it will reduce the power load in the country and continue pursuing power rationing in the face of the rising costs of LNG (Mizzima 2022).

The most relevant pull factor for export processing remains, however, global market demand. Levels of global demand, supply, trade and finance have plunged during 2020 and only slightly recovered in 2021 and 2022 (World Bank 2020; Chowdhury et al. 2021). Since March 2020, the Thilawa SEZ had not received any new investment. In the Yangon area, it is estimated that in May 2020 around 6,300 workers lost their jobs due to the Covid 19-related economic downturn. In June 2021, slowing global demand caused by the pandemic and the disruptions caused by the military coup of February 2021 and delays along global supply chains forced many SEZ-based manufacturers to halt production (The Irrawaddy 2021a; Myo 2020). Though specific quantitative data on the Thilawa SEZ could not be retrieved the following schematization, based on the available data, can help to better understand the situation in 2020-21.

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<sup>5</sup> This is related to sanctions imposed by the US in February 2021 which hit Burmese or foreign people engaged in supporting in any way the activity of people belonging or related to the Burmese Army, following a military coup that overthrew a democratically elected government led by Aung San Suu Kyi. See the President of the United States of America (2021) and Goldman (2022).

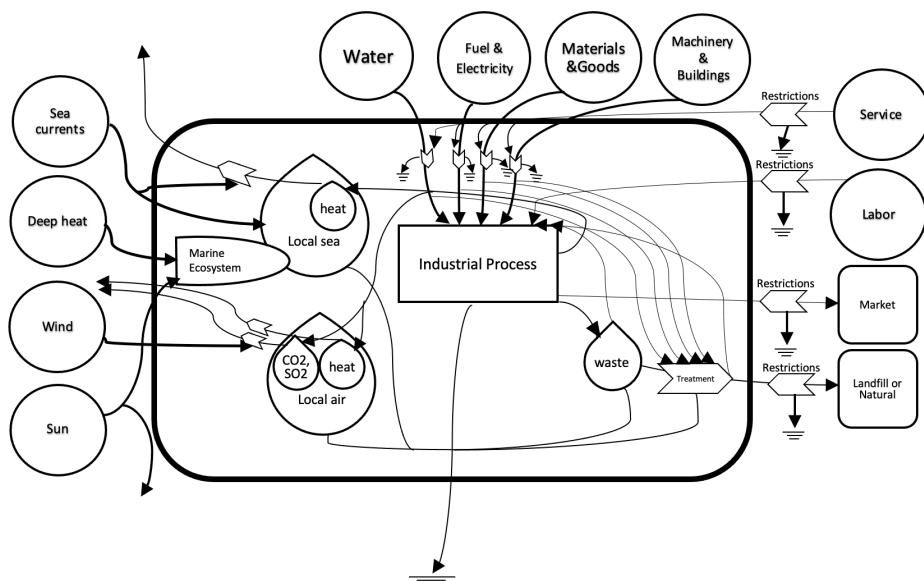


Figure 4: Tentative schematization of the COVID-19 impact on Thilawa (2020-21)  
based on available data  
(Source: Author)

In comparison with Fig. 1, Fig. 4 presents a decreased influx of labor and services due to the restrictions imposed by the Burmese government on workers' movements. As a consequence, transactions between services, labor and the market are cut or severely limited. Despite the aforementioned shortages in the LNG supply and business shutdowns, other inputs such as energy, water, machinery and buildings may have remained due to IT infrastructure, idle machinery, etc. Environmental inputs remain unchanged. In addition, sluggish global demand reduced the output of goods, though, at the same time, the impact of industrial processes on the surrounding environment (in terms of energy consumption and waste output) might have been reduced due to the general slowdown of manufacturing and, in general, human activities in the system.

#### 4.2. The Van Don SEZ, Vietnam

As opposed to Thilawa, the Van Don SEZ is poised to become a major large-scale tourism and leisure-oriented SEZ in Quang Ninh Province, Northern Vietnam. Covering an area of 553.2 square kilometers and 52,000 residents as of 2019, it has been elicited as one of the economic pillars of the Socialist Republic of Vietnam (SRV)'s "green growth" strategy launched in 2012 (Tam 2019, 87; JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016; Ngoc

2019). Identified in June 2006 and officially established a decade after, the Van Don SEZ encompasses over 600 islands on a total area of 217,133 hectares and borders the UNESCO World Heritage spot of Ha Long to the West.

In particular, the area was recognized as a key node for the whole northeast in the Quang Ninh Province's "Development Plan to 2020 with a Vision to 2030" (JICA, Mitsubishi Research Institute, and Landtech Japan 2013, 84; JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, 2). The SRV government aims to make Van Don a "tourism cluster." To this end, it has invested massive resources (nearly US 450 million dollars) in the completion a) of the Van Don-Mong Cai expressway, which connects the tourist landmark of Ha Long with the Mong Cai border gate with China; b) of an international airport (opened in 2019); and c) port facilities to promote boat tourism to Ha Long (National Institute for Urban and Rural Planning 2012, 46).

Such a commitment is consistent with the SRV's Strategy on tourism development until 2020, vision to 2030. Specifically, as stated in the government's guidelines,

Red River Delta and coastal northeast, including Ha Noi, Hai Phong City, Vinh Phuc, Bac Ninh, Hai Duong, Hung Yen and Thai Binh, Ha Nam, Ninh Binh, Nam Dinh, Quang Ninh Provinces, are characterized by sea sightseeing, cultural tourism associated with the values of the wet rice civilization and local traditional activities, urban tourism, MICE (Meetings, Incentives, Conferencing, Exhibitions) tourism (the Prime Minister of the Socialist Republic of Vietnam 2011).

Apart from the eco/green narrative illustrated above, the broader Van Don SEZ infrastructure and real estate development plan will turn the district into a multi-activity large-scale SEZ, with logistics and trade hubs open to inflows of goods and people from the region and from other parts of the globe (JICA, Mitsubishi Research Institute, and Landtech Japan 2013, 84) and "new tourism products" such as casinos, discount luxury shopping complexes and high-end housing spaces (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, II-44–45). As a result, the SRV's government expects that the SEZ will see its resident population grow to 140,000 people and create 89,000 jobs

(Ngoc 2019). Against this backdrop, Vietnamese authorities also refer to the area as a desirable “symbol of green growth” (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, II–31), a “smart, modern and green coastal area” (Ngoc Mai 2019), a site of “eco-tourism” (VNA 2020) and a “multi-sectoral marine economic zone and an entertainment centre” (VNA 2020). It is therefore hardly surprising that besides investments, foreign government agencies, including Japan’s JICA, and international consultancy firms, such as McKinsey and BCG of the US and Japan’s Nikken Sekkei and Nippon Koei have supported provincial authorities in the draft of strategic development plans for the area (Ministry of Construction 2019).

Using the proximity to the tourist landmark of Ha Long Bay as political and commercial leverage, local authorities emphasize the role of tourism as part of their efforts to spur an economic shift from the primary and informal sectors to the service ones, luring international tourists, particularly Chinese. Being at the core of the Red River Delta area, Quang Ninh has in fact one of the largest reserves of coal in Vietnam, supporting around 90% of the national coal production (both legal and illegal) with more than sixty coal mining sites, of which more than forty are in operation, managed by state-owned Vietnam Coal and Mineral Corporation (VINACOMIN) (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, II–25–29; Phan 2008).

Despite several delays and popular unrest over a new SEZ law, which is still under parliamentary scrutiny at the time of writing,<sup>6</sup> the development of the area has proceeded steadily. According to official data, by the end of September 2021, Vietnam’s industrial zones and economic zones have attracted US 10.2 billion dollars from international investors, adding up to US 8.25 billion dollars from domestic investors, with a total registered capital of US 230.1 and 109 billion, dollars respectively (Ministry of Planning and Investment 2021). Furthermore, the province is one of the major tourist destinations in the country and has seen its visitors almost triple in less than a decade (from 5.4 million in 2010 to 14 million in 2019) (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, II–35; Minh Cuong 2021). Against this backdrop, Quang Ninh’s industrial and economic zones have attracted US 1.17 billion dollars in

<sup>6</sup> A first draft law on economic development and investment in SEZs was submitted to the National Assembly in 2017 and has stalled ever since causing divisions within the Communist Party and public opinion. Particularly controversial is the proposed concession of a 99-year lease to foreign investors. Furthermore, the proposed legislation would allow for potentially environmentally disruptive businesses, such as chemical plants, and waste management facilities, and unregulated China-bound trade, including on endangered animal species (Kishtwari 2021; Fawthrop 2018). These factors have raised concerns on a possible advance of Chinese influence in the area causing unprecedented popular protests in June 2018 and subsequent police repression (Schuler and Truong 2020, 397; Fawthrop 2018; Nguyen 2018a; Tran 2018).

investments for technical and transport infrastructures (roads, power and water supply, drainage and wastewater treatment) and helped to create 25,000 jobs contributing to the state's tax revenues by US 2.4 billion dollars (VNA 2020; 2019). In detail, since its establishment, the Van Don SEZ has attracted slightly more than US 1 billion dollars in investments which resulted in large-scale tourist resorts and eco-tourism sites. Since 2014, investments in the real estate sector have poured in and housing prices have boomed (VNA 2019; Ministry of Construction 2019; VnExpress 2020) and other large real estate development projects are under way in neighboring Mong Cai (VNA 2020).

In this context, the Sars-COV2 pandemic hit. In an attempt to stop the spread of Sars-COV2-related infections since February 2020, the SRV government has adopted a "whole of government" strategy leading to the mass mobilization of health workers and public officials that was key to organizing communication campaigns, mass testing, contact tracing and quarantining. Following the example of other governments in the region, Hanoi decided to restrict international travels until March 2022 (Lahiff et al. 2022; Onishi 2022). As a result, along with manufacturing, tourism was hit hard by the government's response to COVID-19. Even tourism-related jobs, such as street vendors, or motorbike taxi and taxi drivers, usually done by uncontracted or migrant laborers, have been affected by the restrictions causing the unemployment rate to hit a 10 year-high. According to estimates, more than 17 million people saw their income curtailed (Lahiff et al. 2022). As revealed by a General Statistics Office report, in October 2021, one million migrant workers had left urban and industrial areas in the country to go back to their hometowns to dodge government travel restrictions (Nguyen 2021) thus highlighting industrial and economic zones vulnerability to external shocks, that though temporary have profound impacts on the social reality (Ministry of Planning and Investment 2021).<sup>7</sup>

To relate this discussion to the two diagrams (fig. 1 and 2) presented above, the Van Don SEZ can be better analyzed with reference to the second one, modeled by Gonella and Cristiano (2020) on the case-study of Venice. As shown above, tourism, conceived as a "sustainable" activity has emerged as an important economic engine particularly for regions and provinces to attract foreign money and, in certain cases, promote economic recovery. Apparently, i.e., without analyzing its deeper implications on a certain area's socio-ecological system, tourism is often perceived as a more economically and environmentally sustainable activity than an environmentally burdensome secondary industry. Waste from the mining,

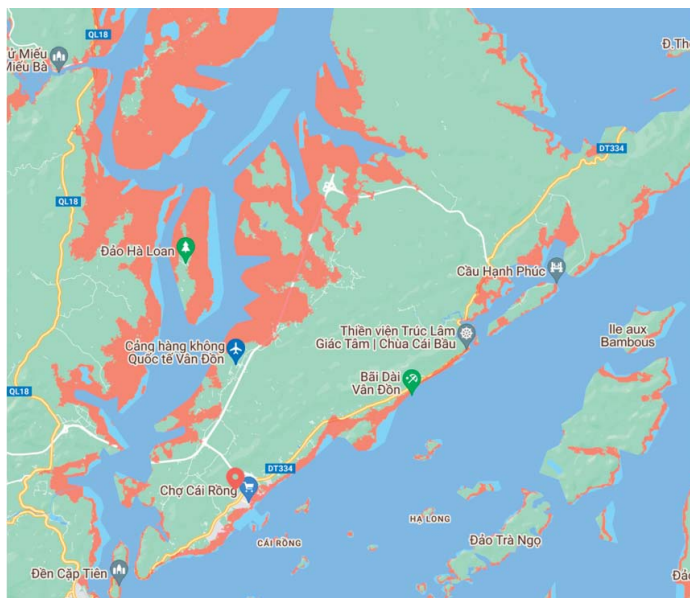
<sup>7</sup> According to recent studies, the SRV's migration policy suffers from several inefficiencies (see Dang and Nguyen 2021) which would in turn favor illegal migration practices from neighboring countries, particularly from China, Laos, Cambodia, and Thailand (Ishizuka 2013; Nguyen 2010; Nguyen 2020).

cement, food processing and aquaculture industries, in fact, have contributed to environmental decay in the area, increasing organic pollution levels, and above-standard oil and heavy metals concentrations in protected water bodies in Van Don and Ha Long Bay areas in the context of advancing eutrophication (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, II-21–23). On top of this, the heavy rains of July 2015, causing the breach of a dam and the subsequent inundation of several coal mines and power stations, resulted in 17 deaths, the evacuation of thousands of workers, local residents and tourists, and a potentially hazardous toxic slurry containing byproducts of coal extraction and processing such as arsenic, sulfur, and mercury into the marine environment (Pradas Osuna 2017), likely leading the local government to draft alternative growth plans in line with central guidelines.

Nevertheless, tourism can be considered a deceptive “magic recipe” (Cristiano and Gonella 2020, 2). First, the environmental impact of tourist accommodation facilities and related activities has been highlighted, particularly as far as energy and water consumption, and solid waste generation are concerned. In general, it might be possible to conclude that the higher the category of the facility, the larger its environmental impact (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016, II-58–61). Second, particularly in vulnerable ecosystems such as those of Venice and similarly in Van Don, where water also acts as a pollutant diluter (Cristiano and Gonella 2020, 8), an increase in people and activities in the SEZ-designated areas and surrounding buffer zones inevitably result in increased pollution with significant visual and physical impacts reflecting on the nearby UNESCO World Heritage site of Ha Long Bay (MacKay and Vrins 2018).

Third, tourism is in essence an input-dependent activity. As stated above, the presence of an important tourist phenomenon in one locale produces “a split” in the outflows from urban assets to “power the tourism industry,” diverting physical resources from citizenry to tourists, and ultimately, creating a dependence of the urban system on a stable amount of tourist arrivals, progressively weakening the system, which ceases to be resilient and adapt to external disruptions such as labor or energy shortages (Cristiano and Gonella 2020, 6–9). With the development of tourism in the area, additional inputs of workforce will be required to respond to emerging demands and continue fueling the industry (Cristiano and Gonella 2020, 7). This appears clearly in the schematization of the workings of a tourist city in Fig. 2. As illustrated above, Van Don is projected to become a tourism and leisure-oriented SEZ in the next few years. In other words, tourism is expected to be the area’s most profitable industry. Given its structural vulnerabilities as shown in Fig. 2 and above, however, in case of a major system disruption (e.g., the curtailment of domestic and international travels amidst a global pandemic),

tourism-related flows and stocks of resources, which are central in Fig. 2 (highlighted in red), and were already significant in the Ha Long Bay area during 2020 and 2021 (Ahn 2021), might be discontinued, thus affecting the entire system's working to the point of threatening its own survival.



**Figure 5: Rising sea levels in Van Don District**

(Source: Climate Central n.d.)

Apart from the pandemic-related policy factor, the current climate emergency poses further risks and accentuates the region's vulnerability. The rise of global temperatures most immediately and visibly affects coastal areas due to changes in sea levels and the frequency and magnitude of hurricanes and tropical storms (Michener et al. 1997). As shown in Fig. 4, several coastal areas in Van Don district (highlighted in red), including the international airport built to serve as a gateway to the SEZ, are projected to be under the sea-level by 2050 (Climate Central n.d.). Moreover, its own vulnerability to extreme weather conditions (Pradas Osuna 2017) and its proximity to the Red River Delta area, one of the most densely populated flood-prone riverine areas in the world (McElwee et al. 2017), are likely to further increase the Van Don SEZ system's vulnerability.

## 5. In lieu of a conclusion

This chapter addressed the issue of sustainability of SEZs in mainland South-east Asia from a ST-based epistemological perspective. In an attempt to offer a multi-level and inter-disciplinary perspective, the focus of this chapter has been mostly on the discussion of theory and methods which may serve to construct a solid criticism of a phenomenon which does not exclusively affect low- and lower-middle income countries, but even high-income economies (see for instance Manti 2019; Hinohara 2019). The observations made above should be better considered only as preliminary results. The hypotheses laid out based upon the ST epistemological toolkit need to be substantiated by qualitative and quantitative data available in the field. The data presented above come mostly from secondary literature and were considered insufficient to draw a diagram as those in Fig. 1 and 2 to better illustrate the cases discussed above. It is the hope of this researcher to conduct extensive field research to fill this gap.

Nevertheless, through a case-study approach to the subject, this chapter hopefully contributed to shedding light on relevant aspects informing the international discourse on SEZs. At the same time, this chapter has underscored how, in the current global economic and political arrangements, lower-middle income countries such as Vietnam and Myanmar tend to focus on short-term gains and profit maximization in their policy planning rather than on the long-term effects of their decisions and on the deep relations between societies and ecosystems. These vulnerabilities have been exposed during 2020 and 2021 by the COVID-19 pandemic. The recognition that the current crises (pandemic, environmental and political) have profound implications for the sustainability of state-led and state-supported projects is, however, central to the argument.

As complex human systems, SEZs are not sustainable only by juxtaposing blanket terms (such as "green, eco, or smart"). Rather, they must first be considered as part of an intricate network of relations between the social, political and economic systems of which they are an expression and also the surrounding natural environment. The two case-studies presented in the preceding sections help to exemplify the above-mentioned points. Both are examples of the diversity of SEZs as they are categorized by multilateral and international institutions. One, Thilawa, is an export-oriented manufacturing pole sponsored by a partnership between a recipient country (Myanmar) and a donor (Japan) and by private actors on both ends. Fragilities in this case are mostly related to the contradictions inherent in contemporary global trade and to the vulnerabilities of global supply chains, namely their interdependence and reliance on global demand, highlighted by the disruptions caused by the COVID-19 pandemic.

Having been built in a scarcely populated area previously used as farmland, the development of Thilawa, since 2013, has encountered opposition from the

local communities. Such opposition was not strong enough to halt the project, but nor could it be overcome by an organized response by state authorities or by the promise of socio-economic development. Resilience seems to be lacking, however, in its energy and socio-political dimensions. Similarly to other EPZs in the region, its work largely depends on inputs of fossil fuels (Odum 2007; Mizzima 2022), whose supply is becoming increasingly susceptible to disruptions in case of political crisis affecting producing countries, or the inability to make international payments (e.g., because of sanctions imposed against the country). Furthermore, transformation, manufacturing and logistics depend on commuting or migrant workers who might be unable to reach their workplace due to government restrictions on the movement of people.

The other, Van Don, at least in the way it is represented in documents and reports that were analyzed for this chapter, presents environmental vulnerabilities and deeper implications of unsustainability. First, popular opposition has at least resulted in the postponement of the adoption of a specific law aimed at liberalizing existing rules on land lease. The June 2018 protests have been described as “nationalistic” because of historical PRC-SRV political tensions and local residents’ suspicions toward Chinese activities in the area. However, a specific socio-environmental rationale cannot be totally denied. First, June 2015’s heavy rains and coal mine floods have had a disrupting impact on the province’s economy having led to a temporary suspension of mining activities (Talk Vietnam 2017). Quang Ninh Province’s mining sector had already been subject to downscaling in the past three decades (Spaeth 1999). Second, the above-mentioned plans to turn the province into a hub for regional and international tourism, continuing building the region’s image upon the UNESCO World Heritage-listed Ha Long Bay and new infrastructure and connectivity projects around Van Don area point to a systemic transformation of the local economy from an extractive to a service (tourism and leisure)-based one. Third, as shown above, fostering a locale’s dependence on tourism does not necessarily mean that its economy, society and environment will be more sustainable, nor does it equate to fostering resilience in the entire system.

Based on previous analyses of tourist cities, it might be said that tourism, instead of creating sustainability and reinforcing resilience of local economic and social systems, poses a burden upon socio-ecological systems (in terms of waste and the depletion of the locale’s economic diversity), particularly in ecologically vulnerable environments (Cristiano and Gonella 2020). The damages of property development around the Ha Long Bay, not far from the proposed Van Don SEZ, are already visible and calls on the provincial and national governments by international organizations to enhance more reliable governance and monitoring systems have been on the rise (JICA, Nippon Koei Co., LTD., and International Lake Environment Committee Foundation 2016; MacKay and Vrins 2018).

Ultimately, a reflection is due on the relationship between SEZs as global neo-liberal policy tools, democracy and human rights. As clearly appears from these cases, local resistance to SEZs is often suppressed through security enforcement, de facto appropriation through property development and executive decisions. International partners and consultants, even government agencies from liberal democracies, seem more interested in profit-maximization for private stakeholders than creating the foundations for a "sustainable," thus shared, use of the commons. Therefore, it might be argued that, even though they are often referred to as "sustainable" by their promoters, SEZs present critical elements when it comes to their "actual" sustainability. This is especially so in the light of possible future systemic shocks, caused by a new pandemic or by the climate crisis. In this situation, we should once more ask ourselves whose "sustainability" SEZs represent and work to rethink the very concept of SEZs currently widespread. The approach illustrated in this chapter can help us to move beyond dominant representations and promote a new kind of epistemology on social and economic phenomena.

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