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Health Impact Assessment towards Sustainable Community to Respond to Special Economic Zone in Songkhla, Thailand

Pongtep Sutheravut[1], Virasakdi Chongsuvivatwong[2], Sawpheeyah Nima[1,*]

[1] Public Policy Institute, Prince of Songkla University, Hat Yai, Songkhla 90110, Thailand

[2] Epidemiology Unit, Faculty of Medicine, Prince of Songkla University, Songkhla 90110, Thailand

Abstract: Special Economic Zone (SEZ) brings positive and negative effects on economic, environmental, and social sustainability. This descriptive study sought to provide public policy transformation towards a sustainable and resilient community using Health Impact Assessment (HIA) to local and national decision-making processes for SEZ. The mixed methods were carried out quantitative and qualitative approaches to 521 participants using a questionnaire, in-depth interview, focus group discussion, and a literature study during January-October 2018. The results were revealed both in theoretical and practical aspects of public policies to prevent and reduce environmental risk factors affecting food, health, and human security as follows: 1) strengthen the mechanisms for information center, 2) create multisectoral cooperation teams and 3) build up the capacity of partners working in communities to preserve environmental, food, health, and human security. This proposed public policy came up with 5 main stakeholders' responsibilities to the local, i.e., regulator, owner, developer, operator or manager, and local people. These were expected to ensure that local and regional governments are recognized, engaged, resourced, and demonstrated their crucial role in transforming public policy into action towards SEZ. Therefore, these findings could contribute to Songkhla SEZ's best practices and implications for fostering social and environmentally sustainable development.

Keywords: special economic zone, health impact assessment, sustainability.

对可持续发展社区的健康影响评估，以响应泰国宋卡经济特区

摘要：经济特区对经济，环境和社会的可持续发展具有正面和负面的影响。这项描述性研究旨在通过将健康影响评估应用于经济特区的地方和国家决策过程，为公共政策向可持续发展和具有韧性的社区提供转型。在2018年1月至10月期间，通过问卷调查，深入访谈，焦点小组讨论和文献研究，对521名参与者进行了定量和定性的混合方法。结果在公共政策的理论和实践方面都得到了揭示。预防和减少影响食品，健康和人类安全的环境风险因素如下：1）加强信息中心的机制，2）建立多部门合作团队，3）建立社区合作伙伴保护环境，食品的能力，健康和人类安全。该拟议的公共政策提出了五个主要的利益相关者对当地的责任，即监管者，所有者，开发商，运营商或经理以及当地人民。期望这些措施可以确保地方和地区政府在将公共政策转变为对经济特区采取的行动中得到认可，参与，获得资源并展示其关键作用。因此，这些发现可能有助于宋卡经济特区的最佳做法和对促进社会和环境可持续发展的意义。

关键字：经济特区，健康影响评估，可持续性.

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About the authors: Pongtep Sutheravut, Public Policy Institute, Prince of Songkla University, Songkhla, Thailand; Virasakdi Chongsuvivatwong, Epidemiology Unit, Faculty of Medicine, Prince of Songkla University, Songkhla, Thailand; Sawpheeyah Nima, PhD., Public Policy Institute, Prince of Songkla University, Songkhla, Thailand

Corresponding author Sawpheeyah Nima, sophienima@gmail.com

1. Introduction

Special Economic Zones (SEZs) can be referred to a part of the area in a country that is subject to different economic regulations than other regions to attract and facilitate foreign investment, integrate local firms into global value chains, promote export-oriented growth and generate employment within the country [1]. However, more than 50 years of global SEZ experiences have demonstrated a mixed history of success and some pitfalls [2]. SEZ risks have been associated with the lack of proper implementation in developing countries, weak government capacity, inequality legal and regulatory frameworks, and poor construction capabilities leading to a social resistance movement against SEZ [3]. Several lessons learned for SEZs' effects on health and human security include employment, poverty, and human development.

Since 2015, Thailand has launched 10 SEZs in 90 sub-districts of 23 districts of 10 provinces located along borderlines to Myanmar, Malaysia, Laos, and Cambodia. These are expected to expand infrastructure and attract foreign investment with a total investment value of 22,650 million Baht [4]. Songkhla SEZ is one of the first pilot projects to promote economic development and facilitate AEC integration in Southern Thailand. It comprises 4 sub-districts in Sadao District of Songkhla Province, including Sadao, Samnak Kham, Samnak Taeo, and Padang Besar, to boost cross-border trade between Thailand and Malaysia [5]. On the other hand, the current Thai laws and regulations governing SEZs do not contain adequate procedural safeguards and human rights protections, including food security, environment, natural resources, and health [1]. SEZ policy also trends to provide too much trade and foreign direct investment opportunities on the international investor's side. It neglects national and local productive assets, and these benefits do not affect the surroundings of society's welfare. In other words, the positive effects of the SEZ mainly come up with investors, such as tax breaks and business use rights, whereas the effects on local employment or local benefits are less. Consequently, SEZs have failed to bring about local socio-economic development [6] and income inequality.

As human health, well-being, and quality of environment-determinants of health, are at the center of economic and social development due to SEZ. For example, immigrants' livelihoods were lower than those of non-immigrants in SEZ [7]. The weak points of SEZ have also been disclosed for illicit trade such as tobacco. It allows cigarettes to be sold far below their legal price and contributes to higher consumption in global SEZs [8]. Therefore, the community's resilience plays an increasingly important role in any challenge of megaprojects and improving living conditions by public policy. It must be together learned more effectively to deal with these complex risks due to SEZ.

A critical tool in decision-making processes for integrated analyzing environmental and health impact and leads to seeking appropriate mitigation and monitoring measures beyond is called the Health Impact Assessment (HIA) [9]. Its steps are included screening, scoping, assessment, recommendations, reporting, and monitoring and evaluation. This process can be briefly explained as follows:

1) Screening determines whether the HIA is likely to succeed and add value.

2) Scoping: it creates objectives for the HIA and an outline for the steps of the HIA process.

3) Assessment: it involves two steps, describing the baseline health of people and groups affected by the decision and then predicting the potential health effects.

4) Recommendations: it points the way to decisions that protect and promote health.

5) Reporting: its findings are disseminated to decision-makers, affected communities, and other stakeholders requesting feedback.

6) Monitoring and Evaluation consist of 1) process evaluation, 2) impact evaluation, and 3) outcome evaluation. Besides, an ethical public policy should be strong enough to deal with SEZ to fulfill the public's needs and acceptance. However, a lack of study attempts to discover the transformation of public policy for a healthy SEZ to adequately protect human rights and strengthen community resilience by using the HIA framework that has met the public interest and negative externalities control, i.e., community-company conflict. Also, current literature regarding the SEZs in Songkhla is minimal.

According to SEZ has been known as a strategic instrument to promote economic development, i.e., foreign direct investment (FDI), and stimulate job creation. It is also earmarked as duty-free enclaves with a relaxed and business-friendly policy regime to promote rapid industrial development and employment. Meanwhile, Songkhla SEZ trends to focus on processed industries, such as rubber, tire, seafood processing, halal food, will also become a transportation-of-goods-in-transit center. However, the SEZs' food, environment, health, and human security consequences have been declared in some global SEZs. Normally, Each SEZ is governed by four stakeholders: regulator, owner, developer, and operator or manager.

In contrast, the local people show a lack of involvement. Besides, there is little evidence of systematical analysis of SEZ effects; very little is known about whether the public policy supports local benefits. This problem requires public policies to implement based on community participation and decisions. Consequently, this study aimed to describe the involvement of HIA using screening, scoping, appraisal, and recommendation on the development of the best alternative transformation public policy for the

resilient and sustainable community to SEZ development in Songkhla, Thailand.

2. Objective

The article aims to identify and offer the transformation public policy recommendations for a sustainable and resilient community towards SEZ using Health Impact Assessment (HIA) in Sadao district Songkhla province.

3. Materials and Methods

3.1. Materials

A cross-sectional descriptive study was conducted using both quantitative and qualitative methods during January-October 2018. The study samples in quantitative approach were residence people aged 18 years and over who live more than 2 years in Sadao, Padang Besar, SamnakTaeo, and Samnak Kham Sub-district, Sadao District Songkhla province. The sample size calculation was derived from 71,600 people who live in 4 districts equal to 450 persons and randomized by clustered random sampling. In the qualitative approach, in-depth interviews and focus group discussion was performed from the most 121 relevant stakeholders. A purposive sampling method was used for the stakeholder selection based on civil society organizations, academicians, industry experts, media, and policymakers, who have been involved in the development of SEZs.

3.2. Methods

Data were systematically collected, both primary and secondary data sources were taken into consideration. The data also gathered in the HIAs from existing sources, and new data acquisitions were used. The quantitative approach was carried out in the first phase using a questionnaire that included a mix of both closed and open-ended questions. A questionnaire was given to the household with an explanation, and self-reported answers were obtained from one person between 18 and 65. However, other household members would provide additional information during collecting data. In the second phase, data from 5 focus group discussions and 10 in-depth interviews were gathered. The researchers allowed participants to feel free to express their opinions, experiences, concerns, and recommendations relating to the Songkhla SEZ project. The procedures in health impact assessment also performed consisting of:

1) Screening: determine whether an HIA is needed and the value-added to the Songkhla SEZ.

2) Scoping: to identify awareness issues and public concerns, including the social and physical environment, personal or family circumstances, and public services access. It was conducted to identify any potential, current, or emerging health risks as these regions face a higher likelihood for future SEZ development.

3) Appraisal: collect qualitative information to create a profile of existing health conditions, and identify, evaluate, and prioritize the potential health impacts of the decision affected by the Songkhla SEZ.

4) Recommendations: identify alternatives to the decision or strategies for promoting positive health impacts or mitigating the adverse health impacts. Content validity was used to evaluate the quality of research instruments with the Item-Objective Congruence (IOC) equal to 0.91. The questionnaire's reliability was determined by Cronbach's Alpha Coefficient, which was greater than 0.85 to ensure that the responses collected through the instrument were reliable and consistent. The research proposal's ethical approval was done by the Human Ethics Committee, Public Policy Institute, Prince of Songkla University (Ref.no 003/61).

4. Results and Discussion

First, the source for detailed population and housing information about people in the SEZ areas is presented. All samples from communities in these 4 districts that will be directly affected by the Songkhla SEZ project are given in Tables 1-2. The 450 samples' demographic data in Sadao, Padang Besar, Samnak Taeo, and Samnak Kham Subdistrict, Sadao District, Songkhla province were community people and leaders aged over 18 years old (39.78 ± 11.17). The municipality's baseline profile and subdistrict municipality in Songkhla SEZ also revealed the population, density, and water source supplied. Total Songkhla SEZ has been declared extending to 345,187.5 rai (552.3 sq.km.). It is estimated that people within 4 districts, comprising approximately 25,519 households or 71,600 people, will be directly affected by the SEZ and related projects' construction. The project was launched in 2009, and infrastructure development has already begun. Thus, the HIA process's implementation and outcomes were provided by the screening step that determined community partners' and stakeholders' willingness to participate in the HIA.

Table 1 Demographic data (N=450)

Data	Frequency (Person)	Percentage (%)
1. Residence		
Sadao	124	27.6
Padang Besar	107	23.8
SamnakTaeo	107	23.8
Samnak Kham	112	24.9
2. Social Status		
People	416	92.4
Leaders	28	6.2
Religious Leaders	6	1.3
3. Age		
Less than 25 years	51	11.3

Data	Frequency (Person)	Percentage (%)
22-34 years	117	26
35-49 years	192	42.7
50 years or more	90	20
4. Sex		
Male	183	40.7
Female	267	59.3
5. Religion		
Buddha	215	47.8
Islam	231	51.3
Christ	4	0.9
6. Education		
Primary Education	141	31.3
Secondary Education	176	38.9
Diploma or equivalent	35	7.8
Higher Education	99	22
7. Occupation		
No occupation / not working.	32	7.1
Employees	87	19.3
Own business	191	42.4
General contractor	84	18.7
Industrial plant manager	1	0.2
Government employees	47	10.4
Student	8	1.8
8. Type of Residence		
Local	253	56.2
Outsider	197	43.8
9. Possibility of Relocation		
Yes (Plan)	37	8.2
No (Do not plan)	351	78
Not sure	62	13.8

Table 2 Baseline population in Songkhla SEZ

Municipality	Area (km^2)	Population (Person)	Density (Person/ km^2)
Sadao Town	47.00	20,422	434.51
Padang Besa Town	11.22	15,293	1363.01
Samnak Kham Subdistrict	140.06	12,429	88.74
Padang Subdistrict	194.00	9,085	46.83
Samnak Taeo Subdistrict	268.66	14371	53.49
Total	660.94	71,600	108.33

Second, an investigation for risk analysis to raise awareness and identify public concerns into the Songkhla SEZ context in the HIA scoping phase is revealed in Table 3. Examining samples' concerns and pathways and potential impacts of a population health decision, including population and vulnerable groups, are likely to be affected. HIA was initiated in this study when there were potential factors for the HIA to add value to the decision-making process. For example, health and other concerns were not already considered or disproportionate outcomes for their communities. The main concerns are divided into 4 categories: environmental, food, health, and human security. The closed-ended questions were those which can be answered by a simple "yes" or "no," to express “agree” or “not agree” with the statements. For the opened-ended questions, local people expressed that they were not against SEZ development, but they wanted the SEZ not to harm people or the environment. The governments and other project partners should take people’s concerns seriously and work towards sustainable development by improving the local communities' livelihood security and environmental sustainability. In the areas studied, land and forests are critical livelihood resources, which provide food, income, and employment to various generations of families.

Table 3 Scoping phase survey (N=450)

Issues	Yes	No
1) Environmental Security		
1. Environmental quality concerns	435 (96.67%)	15 (3.33%)
2. The possible hazardous materials used	440 (97.78%)	10 (2.22%)
3. An appropriate waste management	37 (8.22%)	413 (91.78%)
4.The policy for residence capacity	15 (3.33%)	435 (96.67%)
5. The framework for environmental threats	129 (28.67%)	321 (71.33%)
2) Food Security		
1. Big threats to the local farmers	348 (77.33%)	102 (22.67%)
2. Efforts to support to use the land	111 (24.67%)	339 (75.33%)
3. Community efforts for food production	421 (93.56%)	29 (6.44%)
4. Policy on the water management	85 (18.89%)	365 (81.11%)
5. Agricultural land protection concerns	71 (15.78%)	379 (84.22%)
3) Health Security		
1. Adequate local health services	235 (52.22%)	215 (47.78%)
2. Local health services to migrant workers	399 (88.67%)	51 (11.33%)
3.Thais' health insurance in Malaysia	85 (18.89%)	365 (81.11%)
4. The outbreak risks plans	112 (24.89%)	338 (75.11%)
5. Response for in an emergency	39 (8.67%)	411 (91.33%)
4) Human Security		
1. Safe and secure in life	50 (11.11%)	400 (88.89%)
2. Cultural differences management	435 (96.67%)	15 (3.33%)
3. Daily life changed	349 (77.56%)	101 (22.44%)
4. Adequate protect vulnerable workers	35 (7.78%)	415 (92.22%)
5. Quality of worker accommodations	222 (49.33%)	228 (50.67%)
6. Buffer zones for	18 (4.00%)	432 (96.00%)

Issues	Yes	No
residential areas		
7. The resettlement due to SEZ	132 (29.33%)	318 (70.67%)
8. An impetus for good living conditions	119 (26.44%)	331 (73.56%)
9. Opportunities for economic improvement	25 (5.56%)	425 (94.44%)

Third, the prioritization of recommendations decision-making for the local level from in-depth interviews and focus group discussion using an HIA appraisal process. The study was conducted to obtain a clear picture of how Songkhla SEZ is being implemented in 4 districts and identify potential issues for improving life using the HIA practice. The primary emphasis is on environmental, food, health, and human security conservation measures and how the local people's rights are protected. For environmental security, they mentioned natural resource depletion and environmental degradation in the future, a coordinating mechanism for the environmental committee at the community level was raised. The main finding of food security concluded that land is a critical livelihood asset for most SEZ areas. Most affected people consider agriculture to be their primary occupation. All participants were also expected to lose all or some of their land to the SEZ. To have more meaning and gain acceptance from a wider community to health and human security, they proposed a long-term plan or strategic framework and flagship projects to deal with SEZ. 3. In brief, to prevent and reduce risk factors affecting environmental, food, health, and human security, the recommendations for public policies were: 1) strengthen the mechanisms for information center or SEZ database management system for coordination and conflict resolution; 2) create multisectoral cooperation teams among relevant partners, local government organizations, and communities to produce SEZ understanding; 3) build up the capacity of individual personnel and partners working in communities to protect the people's rights, environmental and health effects. This study also discovered that the critical flaws in SEZ were given limited information to the community and no meaningful consultation with the expected affected families.

Although there is still uncertainty about the precise area, numbers of households, and even the total number of villages that will be directly affected by the Songkhla SEZ project in the future, the public policy for humanity is necessary to provide in a good manner. Besides, resilience enables individuals, communities, and systems to survive, adapt and grow in the face of stress. Meanwhile, the 7 essential dimensions were economic, food, health, environmental, personal, community, and political security that have been highlighted by the United Nations Development Programme (UNDP) since 1994. A sustainable and resilient community is also guaranteed with 4 securities: food, environment, health, and human security. All these securities are naturally fundamental to local security and sustainable development. In this study, health impact assessment played a novel toolkit, majorly assisting planners, policymakers, academic institutions, nonprofits organizations, community, and local health departments by improving and expanding the breadth of data used in the decision-making process towards ultimate well-being society goals. Besides, HIA brings together data from health, planning, and other fields from multiple sectors to combine and analyze. That demonstrated the potential tool of HIA that given more sensitivity than current scientific tools for health risks detection due to SEZ activities.

5. Conclusion

Currently, Thailand has given important opportunities to drive the country forward from being a developing country to being a developed one by changing its status from middle-income to high-income countries. Although SEZs are considered the best option for bringing about systematic structural transformation in an economy, the environment, food, health, and human security should not leave behind. The findings indicated that these 4-steps of HIA were typically a prospective assessment tool for the decision support to the transformed-public policy before SEZ implementation. The analysis heavily draws on the existing local evidence and experiences. A comprehensive strategy must be designed to develop local plans around the SEZ areas with community participation to reap this opportunity's benefits. However, this study's lack of the step of report and monitoring and evaluation (M & E) in health impact assessment and another follow-up process in the HIAs could be limiting the overall utilization and effectiveness of this tool in the Songkhla SEZ. Thus, to assess the effect of such policies, and more broadly, whether SEZs have achieved their objectives, the M&E step of HIA should be put in place in the next study.

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