

The Development of Ecological Industrial Town of Ladkrabang Industrial Estate

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Abstract - The objectives of this dissertation were to study: 1) characteristics of Ecological Industrial Town development, 2) problems in Ecological Industrial Town development, and 3) approach for Ecological Industrial Town development in Ladkrabang Industrial Estate. This qualitative research employed interview with 4 groups of 16 key informants. They were administrators and staffs within the government agencies, administrators and personnel within the Industrial agencies, community leaders, experts or academicians with good knowledge of ecological industrial town.

The research result showed that the characteristics of eco industrial town development process depended on governmental policy and condition of problems. The process was mostly to solve environmental issue which caused by industrial development in the area, or to prevent any effects from industrial development project; by focusing on waste reduction and effective energy recycling. Major problems in development are that each sector is still lack of knowledge to truly understand the concept of ecological industrial town. Regarding laws and regulations, inspections were not being conducted seriously; also there is some unaccommodating limitation. Regarding resource management, there is a lack of ecological efficiency. Regarding infrastructure, there is a lack of continuity in development; also the developing rate is slower than city growth rate. Finally, regarding budget management structure and zone supervising, it does not support

development process on each aspect to be equally and simultaneously developed. Key solutions for Ecological Industrial Town development are that government must establish a clear policy and provide earnest support. In addition, campaigns should be conducted to educate all sectors about Ecological Industrial Town; also to create interdependent network between industrial, local economics, and community sectors. Furthermore, laws and regulations must be seriously enforced and revised to accommodate development. Finally, resources should be managed efficiently, especially balancing of city development between industry and livelihood of local population.

Keywords - Ecological Industrial Town, Physical Dimension, Economic Dimension, Environmental Dimension, Social Dimension, Managerial Dimension

I. INTRODUCTION

Considering Thailand's current direction of city development, it is necessary to consider the role of industrial expansion, also measure for industry, community, and environment, especially on the surrounding of industrial area, to coexist with mutual benefit [1]. Due to an attempt to take industrial development guideline into action to numerous industrial areas of the country to solve environment and social problems which required various fields of knowledge and consent of all sectors in the area, therefore there should be an appropriate study to enhance industrial estate to Ecological Industrial Town on various aspects: area, development potentiality, and cooperation of

stakeholders, to lead the way to lasting Ecological Industrial Town development.

II. RESEARCH OBJECTIVES

1. To study the characteristics of Ecological Industrial Town development.

2. To study the problems in Ecological Industrial Town development.

3. To study the approach for Ecological Industrial Town development.

III. RESEARCH RESULTS

1. The characteristics of ecological industrial city development process depended on governmental policy and condition of problems on physical, economic, environmental, social, and management aspects. The process was mostly for solving environmental issue which caused by industrial development in the area, or to prevent any affects from industrial development project; by focusing on waste reduction and effective energy recycling.

2. Major problems are: 1) lack of knowledge about ecological industrial town, 2) related laws and regulations do not facilitate implementation; also ineffective law enforcement, 3) inefficiency in ecological efficiency resource and energy management, 4) inadequacy of infrastructure and continuity in development, and 5) structure of budget management and zone supervising does not commercially support area development process on each aspect to be equally and simultaneously developed.

3. Key solutions are: 1) government must provide earnest support regarding city management in term of clear policy and sufficient budget, 2) campaigns should be conducted to educate all sectors about Ecological Industrial Town, 3) network between industrial sector, local business, and community must be created to tangibly work together, 4) laws and regulations must be seriously enforced and revised to favor development of Ecological Industrial Town on

all facets, and 5) there should be a procedure to create a balance between industry improvement and livelihood of growing local population.

IV. RESULT DISCUSSION

1. Regarding the characteristics of Ecological Industrial Town development, the process depended on governmental policy and condition of arisen problems. The objectives were to mainly solve environmental issue caused by industrial development in the area, or to prevent any effects from industrial development project, by focusing on waste reduction and effective energy recycling. This corresponded to the Ecological Industrial Town development idea of the United States, Canada, Sweden, Denmark, and United Kingdom [2, 3] which have similar implementation by focusing on optimization of resource allocation and usage. They are the use of energy efficiency, choosing to use of renewable energy or alternative energy, use of waste from industry and waste exchange between plant in order to move towards a zero waste, which make the natural resources and environment to better and more.

2. On the issue of Ecological Industrial Town development, there are five related problems as following:

- Regarding comprehension in Ecological Industrial Town, each sector is still lack of knowledge to truly understand the concept of Ecological Industrial Town, resulting in absence of collaboration in development and clear direction for execution, which caused implementation difficulty on the part where Ecological Industrial Town would be connected to existing city. This corresponded with the researches of Somchai Muyjeen, Preecha Piampongsan, and Industrial Estate Authority of Thailand [3, 4, 9].

- Regarding related laws and regulations which is a drawback for doing business where quickness is crucial, this corresponded with the research of Somchai Muyjeen which stated that an obstacle in

Ecological Industrial Town development execution was unfavorable because of procedure and limitation from rules and regulations [3]. In addition, the law also use of force as long ago, many provisions of Section inappropriate for days [1].

- Regarding resource management, energy and resource management are not eco-efficient. This corresponded with Chanvech Boonpradern [5] who stated that the more effective government's environmental management, the better chance in increasing an organization's capability in bringing air pollution control policy into practice. Moreover, it also resembled the idea saying that in order for a policy/project to be successful, it must fully supported with budget and human resources [6], Inclusive of various service factors [12].

- Regarding infrastructure, there is a lack of continuity in development; also the development rate is slower than city's growth rate. Furthermore, the infrastructure is inadequate for both industrial sector and local population causing incapability in handling environmental problems. This corresponded with Pornparat Petpakdee, and Institute for Industrial Environment [3, 7] who stated that one of major problems in execution was discontinuity in infrastructure development which caused incapacity to support ecological logical industrial development.

- Regarding budget management structure and zone supervising, it does not accommodate area development in term of codependent business, also development process on each aspect to be equally and simultaneously developed. This corresponded with Pornparat Petpakdee [7] who stated that problems and obstacles in area development were some rules and regulations were not favorable for ecological logical industrial development including local budget allocation system, passive population control, local tax payment system, and waste transportation for recycling.

3. On the issue of solutions to Ecological

Industrial Town development, there are five related solutions as following:

- Regarding governmental policy and support, government should provide earnest support in city management by establishing clear policy and allocating sufficient budget for developing infrastructure to accommodate economic growth and need, including environmental problems occurred from development process. This corresponded with the idea of Roberts [8] and National Reform Council [1].

- Regarding comprehension in Ecological Industrial Town, campaigns should be conducted to educate each sector about Ecological Industrial Town to make them realize about the importance of their participation in the development process; also the roadmap to achieve the goal must be clear. This corresponded with the Ecological Industrial Town development plan of Industrial Estate Authority of Thailand [1, 9]. Including promoting projects in order to reduce the environmental impact caused by the occupation, and operating activities 3 Rs of the community: Reduce, Reuse, and Recycle [13].

- Regarding creating interdependent network, associate network between industrial sector, local economy and community should be created to concretely work together and help each other; following principle of Symbiosis. This corresponded with the research of Stormer [10] and an idea belonged to Pornparat Petpakdee [7].

- Regarding related laws and regulations, laws must be seriously and effectively enforced in order to control offenders or people who cause damage to environment. This corresponded with the researches of Chanvech Boonpradern and Wisakha Phoochinda [5, 11]; also agreed with National Reform Council [1] who stated that laws and regulations should be revised to accommodate development of Eco Industrial City.

- Regarding resource management, a balance in development of city plan between

industry and livelihood of local population should be better created. Moreover, strategy for energy and waste management should be laid out for the benefit of other industry. This corresponded with the researches of Somchai Mooyjean and Roberts [3, 8].

V. SUGGESTIONS

1. Government must establish a clear policy and allocate budget to fund Ecological Industrial City by delivering clear criterions and guidelines to follow. Moreover, a principal institution or special organization should be established to be in charge of supervising matter regarding Ecological Industrial Town by setting related policy and goal.

2. There should be initiative to build cognition and consciousness to the society about importance of Ecological Industrial Town. In addition, there should be a clear directive which obligate industrial estate to create environment and social-economic activities which are mutually beneficial to both communities and Ecological Industrial Town.

3. For further research, there should be study on suitable structure, authority and function of an organization who responsible for Ecological Industrial Town in order to entirely achieve efficiency in Ecological Industrial Town management on the foundation of harmonious, supportive, and lasting co-existence using concept of Ecological City.

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(Arranged in the order of citation in the same fashion as the case of Footnotes.)

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