



Guideline for appropriate management of power development fund in Thailand

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Abstract

The purpose of this study is to recommend a guideline for appropriate management of Power Development Fund in Thailand. Information and data were collected from interviews with key informants such as executives from Energy Regulatory Commission (ERC), Power Development Fund Committee, managers of power development fund in designated areas, employees of power development fund in category A and B, sub-district headmen, village headmen and residents who live around the power plant. The results of this study are analyzed by using content analysis, description and group interview's results. SWOT analysis is then also used. The guideline based on sustainability balanced scorecard (SBSC) has been proposed, which can be used for all power development funds in Thailand. The guidelines for the management of the power development fund will be useful for the ERC to operate and manage the power development fund in designated areas.

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Introduction

Nowadays, energy has become one of the most important factors that develop a country's economic, social and environment sectors. For the economic sector, the number of investments in the country will increase due to the stability of energy. The economic situation in countries will be stable and continuously improved because of an efficient energy supply. In the social sector, the standard of living or quality of life are improved by the stability of energy in the country. Electrification will extend to various localities, distant areas that have not had electricity. The stability of energy in a country will decentralize development to provincial areas. For the environment sector, the energy will provide benefits and cause less impact on the environment with the implementation of clean energy technology or eco-technology. To respond to the high demand for energy, increasing the number of power plants in the country is one of the best solutions. However, the establishment of power plants in Thailand has resulted in many impacts and problems, for example environmental, social and economic problems. For social problems, power plants have social

impacts on the community near the power plant. The effect of pollution after a power plant has been constructed will result in people abandoning settlements. For economic problems, the economic situation around the power plant will change. The resources in the area creates revenue for the community nearby, and this will change due to the construction and establishment of the power plant. The land used to bring in revenue for society will be used for the power plant. For environmental problems, the power plant may result in the environment in the surrounding areas being destroyed by the operation of the power plant. The fuel used to produce energy in the power plant will be released into the atmosphere as pollution emission, which has a serious impact on the environment. From these problems, the "Power Development Fund (the Fund)" has been set up under the Office of the Energy Regulatory Commission (OERC) pursuant to the Energy Industry Act, B.E. 2550 (2007), with the following objectives: to be used as a capital to enhance extensive electrification to various localities, to decentralize the development to provincial areas; to develop or rehabilitate localities affected by power plant operation; to promote the use of renewable energy and technologies for electricity industry operation that have minimal impact on the environment, with due consideration on the balance of natural resources; and to create fairness for power consumers. The operation and management of the power development fund have provided numerous benefits for the stakeholders and residents who live around the power plant. For example; treatment and remedy provided for residents who

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have been affected by the operation of power plants, job creation, increased income for community, promotion of renewable energy and technologies, and extension of electrification project to various localities. Nowadays, the operation and management of the power development fund in Thailand faces some problems. For example, the budget allocation for the power development fund in each category is not appropriate because residents near the power plant do not get any benefit from the fund. The participation of the residents and stakeholders to examine and scrutinize the operation of community projects in a designated area has also become a significant problem. Some community projects do not provide a remedy or treatment for the residents and stakeholders affected by the operation of the power plant. Some community projects involve purchasing household equipment for residents but do not remedy the impact from the operation of the power plant. Therefore, this study will recommend a guideline for appropriate management of the Power Development Fund in Thailand. The content of the guideline is derived from the SWOT analysis by the researcher from the interviews with key informants.

Literature Review

There has been international research using the SBSC methodology to evaluate the performance of an organization or company; for example, the proposal for a new integrated model based on the SBSC and multi criteria decision making (MCDM) approaches by using linguistic variables for the performance evaluation of oil-producing companies (Rabbani, Zamani, Yazdani-Chamzini, & Zavadskas, 2014). The purpose of that study was to propose a model to evaluate performance by using a combination of the MCDM methods and the SBSC approach to help authorities achieve a competitive advantage. Another research project considered managing sustainability with the support of business intelligence by integrating socio-environmental indicators and organizational context, with the main contribution of the study being to propose a conceptual model that seeks to support the process of integration of socio-environmental indicators into organizational strategy for sustainability (Petrini & Pozzebon, 2009). However, in Thailand there is no research which used Sustainability Balanced Scorecard to evaluate performance of the power development fund in Thailand. The related articles about the power development

fund in Thailand have mainly focused on a specific power development fund. For example; the study on the management of general and environment projects by applying good governance of the power development fund at Huay Pong district, Rayong province, the lesson from management of the power development fund, a case study of Plaukdaeng district area, Rayong province, a case study of antecedents of Khanom Power Plant Community Acceptance, a case study of Nam Phong Power Plant Energy Tax Fund (NPP-ETF), the study on people's participation in clean energy fund activities for community development surrounding Kaeng Khoi Power Plant II.

Methodology

This research sets the criteria to select power development fund in each category (A,B) totally of six power development fund by types of fuel mostly used for electricity generation in the power plants, including natural gas, lignite, fuel oil and diesel and the power plants operated by Electricity Generating Authority of Thailand (EGAT). This research collected information and data from interviews with key informants such as executives from Energy Regulatory Commission, Power Development Fund Committee, the manager of power development fund in designated areas, employees of power development fund in category A and B, sub-district headmen, village headmen and residents who live around the power plant. The results of this study are analyzed by using content analysis, description and group interview results. SWOT analysis is then also used. Based on the results of the SWOT analysis, the guideline by using Sustainability Balanced Scorecard theory (SBSC) is recommended for appropriate management of Power Development Fund in Thailand.

Results

From the interviews, key informants have come out with the SWOT analysis of the management of power development fund in Thailand and the guidelines based on Sustainable Balanced Scorecard theory (SBSC) consisting of six perspectives: the overall efficiency of operation and management, stakeholders, internal management, learning and development, environmental, and social perspectives were constructed (Figure 1).

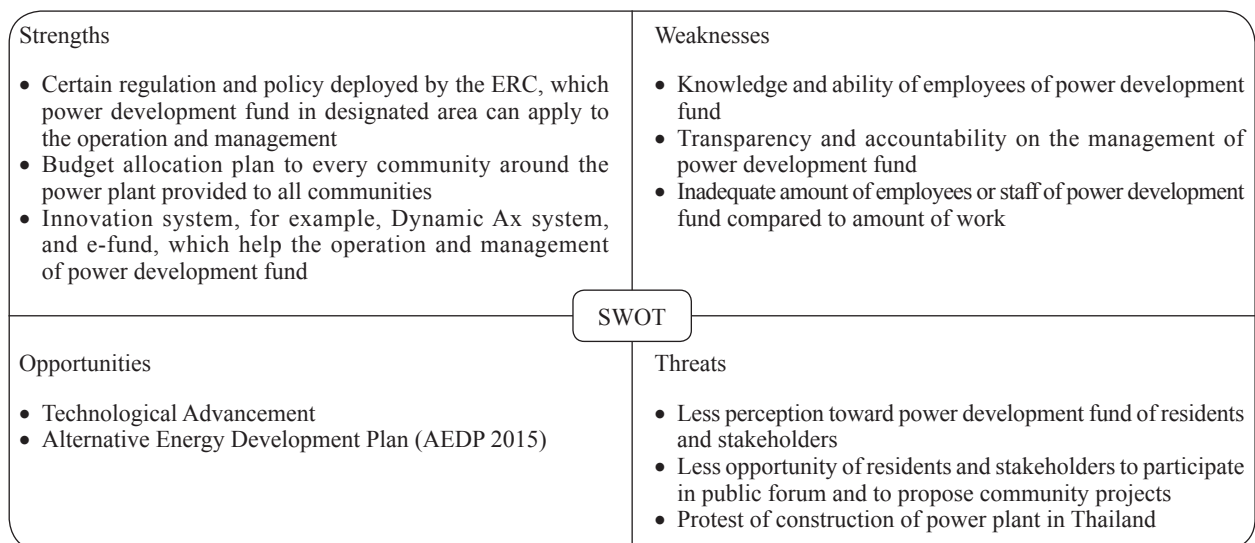


Figure 1 The SWOT Analysis of the management of power development fund in Thailand

Strengths

The strengths of the power development fund in Thailand involve certain regulations and policy that the ERC has deployed to each power development fund in a designated area. The regulations and policy that have a certain pattern help the ERC to manage and operate the power development fund, which can create efficiency and effectiveness. The operation and management of the budget by the ERC also becomes the strength of the power development fund because the ERC has the responsibility to manage and allocate the budget to each power development fund in designated areas under the budget plan in each fiscal year. The power development fund in each designated area also has responsibility of allocating the budget for each community affected by the operation of the power plant with transparency and accountability. The ERC has also applied the program on accounting called Dynamic Ax to use in all ERC Regional Offices. This program is used for setting up and monitoring the use of the budget. Another program is e-fund, used for reporting the progress on the operation and management of power development fund in a designated area.

Weaknesses

For the weaknesses of the power development fund, from the interview with employees of the power development fund in each category, it was found that the employees or staff of the power development fund do not have a job description to determine their own responsibilities. Moreover, they do not have evaluation criteria to evaluate their performance of their own jobs such as Key Performance Indicators (KPI). Another weakness of the power development fund is the transparency and accountability problems toward the formulation of community projects. The interview with residents or stakeholders found that they have comments on the transparency and accountability of the operation and management of the power development fund in a designated area. For example, on the formulation of community projects, the residents in the area are not aware of the establishment of community projects. The residents and stakeholders also have the participation problem as they do not have the opportunity to examine and scrutinize the operation and management of the power development fund. In fact, some power development funds do not provide the opportunity for residents and stakeholders to scrutinize the operation of the power development fund. The number of staff who work in each power development fund is low compared to the amount of work which seems to be more.

Opportunities

The technological advancement becomes the opportunity for the power development fund because the ERC and power development fund in a designated area can apply technology for usage. Recently, the ERC bought the program on accounting called Dynamic Ax to use in all Energy Regulatory Commission Regional Offices and e-fund, which is used to report the progress of planning of the power development fund. Therefore, with the advance of technology, the ERC and power development fund might use the benefit of technology to improve on the efficiency of the operation and management of the power development fund and provide benefits to residents and stakeholders of the power development fund. The Alternative Energy Development Plan (AEDP, 2015), was developed and

focused on promoting energy production within the full potential of domestic renewable energy resources, and developing appropriate renewable energy production with consideration to the appropriateness and benefit in the social and environmental dimensions of the community. With the Alternative Energy Development Plan (AEDP 2015) promoting energy production of renewable energy, it will be the opportunity for ERC and power development fund in a designated area because the power development fund also promotes the use of renewable energy and technologies for electricity industry operation that have minimal impact on the environment.

Threats

From the interview, it was found that some residents and stakeholders do not know about the power development fund and the community projects formulated in the area. Moreover, even if they are aware of the community projects, they do not have the opportunity to participate in public forums to vote for or propose community projects. Protests and demonstrations of the construction of power plants in Thailand has also become a threat in the management of the power development fund.

From the SWOT analysis of the management and operation of the power development fund, it was found that the strengths, weaknesses, opportunities and threats lead to guidelines for sustainable management and operation of the fund. The guidelines cover all operation and management of the power development fund based on the sustainability balanced scorecard. The sustainability balanced scorecard covers six perspectives, namely, overall efficiency of operation and management, management, learning and development, stakeholder, environmental, and social perspectives.

The interviews with key informants and using the SWOT analysis to analyze the operation and management of the power development fund found the strengths, weaknesses, opportunities and threats, which led to applying the evaluation tool, which is the Sustainability Balanced Scorecard (SBSC). SBSC was developed from the Balanced Scorecard theory, which focuses more on social and environmental perspectives. SBSC theory will help to evaluate the performance of an organization or any system which focuses on the external process, such as environmental and social perspectives, with the goal of sustainability in the organization or system. SBSC is useful for evaluating the performance of the power development fund in Thailand because the power development fund has to manage and operate the internal process regarding its performance and needs to focus on its performance toward environmental and social outcomes. Therefore, the power development fund in Thailand can use information from SWOT analysis to approach in Sustainability Balanced Scorecard (SBSC) theory as a tool to evaluate the power development fund and become a guideline for appropriate management of the power development fund in Thailand

Guidelines from Sustainability Balanced Scorecard Theory

SWOT analysis on the operation and management of the power development fund came up with guidelines based on Sustainability Balanced Scorecard Theory (SBSC) (Figure 2).

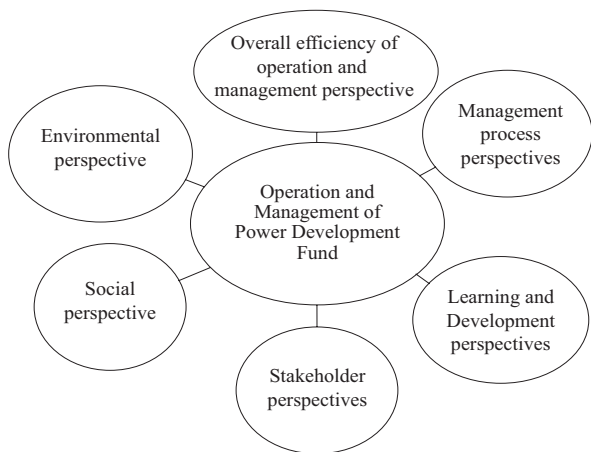


Figure 2 The guidelines based on Sustainability Balanced Scorecard Theory (SBSC)

Overall Efficiency of Operation and Management Perspective

Based on the interview, some power development funds have faced the problems of budget allocation by the Community Development Committee (CDC) to formulate community projects because the CDC seems to allocate a budget to one particular location more than other locations. The researcher recommends that the CDC should allocate a budget to residential areas with concern about the impact on the community from the operation of a power plant. In an area with high impact, the ERC should work with the CDC in the designated area to allocate more budget to formulate community projects, which can help alleviate the impact. On the other hand, for the community less affected by the operation of a power plant, the ERC should work with the CDC in the designated area by allocating a budget that is suitable.

Stakeholder Perspective

The interview with sub-district headmen and residents who live around the power plant found that they do not possess knowledge on writing the document to propose community projects. Most of the proposed community projects are rejected because residents do not have sufficient ability and knowledge on proposing community projects. Therefore, the CDC or the committees of the power development fund, who are public representatives and employees, should guide and assist residents or stakeholders on how to write the community projects. The participating problem of residents and stakeholders to public forums also becomes one of the biggest problems. The CDC, the fund and its employees should cooperate with each other to find the way to encourage residents or stakeholders to participate in public forums, which can provide an opportunity for residents to propose community projects resulting in development in community areas. The interview with residents or stakeholders who live around the power plant found that they have perception problems toward the community projects. Some residents or stakeholders do not know that the community projects are established and formulated in their community area. They mention that the committee of the power development fund in a designated area does not communicate and inform them about

the formulation of community projects in their area. To solve the problem, the power development fund committee should communicate with sub-district and village headmen who are representatives of residents and inform them about community projects.

Management Perspective

The interview with managers and employees of the power development fund found that they would like the ERC to refocus on regulations and policy of all power development funds in each category because some regulations and policy are not applicable and not suitable for some types of power development fund. The ERC should monitor the operation and management of the power development fund and should implement the regulation and policy suitable for the power development fund in each area. This is better than to implement one regulation and policy which applies to all power development funds. The transparency and accountability of the operation and management should be examined and scrutinized. The interview found that some power development funds have received comments from residents on the transparency of their operation and management. The ERC should assign an authorized person or a third party to investigate and scrutinize the operation and management of a power development fund, which will help reduce corruption and transparency problems. Investigate and evaluate the community projects; the interview with the ERC found that the ERC assesses and evaluates the performance of a power development fund by examining the power development fund in category A and B by random sampling by types of fuel that is used to generate electricity in Thailand. As there are many power development funds in each category, it is difficult to evaluate and assess all power development funds. However, by random sampling, there have been disadvantages because the ERC will not know the performance of all aspects of the operation and management of the power development fund. The ERC should assign an authorized person to investigate and evaluate all power development funds in each category. With ERC's visits to all power development funds, the ERC will know all the problems faced by the power development fund and its stakeholders as well as their needs to develop community projects.

Learning and Development Perspective

Key Performance Indicators (KPI) will be used as a tool for the power development fund to evaluate the performance of employees. From the interview with the ERC and the CDC, there have been a few KPI. Without KPI, there will be an impact on the efficiency and the motivation of employees. Therefore, KPI will show crucial criteria and indicators. Moreover, the results from KPI will measure employees' performance in their current position. The better ranking or points employees receive from the evaluation, the more benefit or advantage they will receive. Job Description; in some power development funds, employees work without a job description and they do not have certain responsibility for their position. They work from their own work experience without a job description. The power development fund does not have a job description in written form. By establishing a job description for each position of the power development fund, the employees will know their roles and responsibility for their positions and will follow those job descriptions in their work. A job description will help employees to improve working efficiency and ability. They will have no

misunderstanding about their duties. The job description will be used as a guideline for employees of the power development fund. On job training/In house training; it is very important that the ERC and Power Development Fund in designated areas should be concerned and provide job training which is necessary for employees to apply to their job even if it is not directly related to their responsibility. Job training can provide benefits and advantages for employees in the power development fund because employees need to know about the regulations on procurement, law and regulations about the power development fund, knowledge about accounting and financing, etc. The job training / in house training will improve working ability and efficiency for employees in the power development fund.

Environment Perspective

The interview with employees of the power development fund, sub-district headmen and residents around the power plant found that in some power development funds, the residents have proposed community projects which are not related to the solutions of environmental problems. When residents want to propose the community projects, most of the projects are related to the specific problem occurring in the area and having direct impact on the community. But there are no environment projects proposed by residents or stakeholders. From the diverse problems on environmental community projects, the ERC should deploy policy and regulations that require residents and stakeholders to propose environmental community projects. In addition, if the ERC would like to motivate residents to propose the environmental community projects, the ERC can launch a campaign similar to the power development fund award. However, the campaign should focus on the environmental community projects with the best available technique (BAT) that helps solve environment problems and the best environmental practice (BAP) award, which supports community projects that create practical method or tool to apply for environmental development in the area. The campaign will motivate stakeholders to propose more environmental community projects. By proposing environmental community projects, residents and stakeholders should be concerned with good governance. The community projects are able to be examined and scrutinized by the ERC and the CDC on the transparency of operating community projects.

Social Perspective

From the interview with employees of the power development fund, sub-district headmen and residents who live around the power plant, there have been a lot of community projects which help develop society. However, the diversity of community projects that residents have proposed might not cover social development in communities because, in some areas, residents have proposed community projects focusing on health, social cooperation, education, etc. Therefore, the power development fund in designated areas should encourage and motivate residents or stakeholders to propose social community projects which cover all social development aspects, not specifically the community projects that provide benefits to their own areas. In addition, the ERC should deploy policy and regulations to encourage diversified social community projects. The social community projects formulated in the area should be concerned with good governance based on transparency in operating community projects, providing the opportunity for residents or stakeholders to examine the operation of social

community projects, the need for equality, as well as providing the opportunity for stakeholders to participate in social community projects.

Discussion

A guideline is the tool that helps the power development fund in Thailand to improve the operation and management. It is constructed according to the six perspectives of sustainability balanced scorecard consisting of the following; the overall efficiency of operation and management, the internal management, the stakeholders, the learning and development, the social, and environmental perspectives. Related articles from other researchers use SWOT analysis technique to analyze information from interviews. The SWOT analysis then results in the appropriate guideline for the power development fund management. For example; the study of the management of general and environmental projects by applying good governance of power development fund at Huay Pong district, Rayong province (Winya & Phoochinda, 2016) the lesson from management of the power development fund, a case study of Plaukdaeng district area (Rayong province) (Kusri, 2013). Some studies only focus on the performance of the power development fund in a specific perspective but do not focus on all perspectives which cover the management and performance of the power development fund. Some studies focus on the operation and management of the power development fund in a specific location, for example the developing achievement of Nam Phong Power Plant Energy Tax Fund, Khon Kaen province (Trikitwatanakul, 2011), the people's participation in clean energy fund activities for community development surrounding Kaeng Khoi Power Plant (Amronprom, 2013), Social Responsibility Communication of the Electricity Generating Authority of Thailand—North Bangkok Power Plant (Arunawadee, 2013).

Conclusion and Recommendation

Based on the guidelines for the management of the power development fund under the Sustainability Balanced Scorecard Theory (SBSC), with the overall efficiency of operation and management perspective, the power development fund can use the guidelines to enhance equality and fairness on allocating a budget for residents and stakeholders to propose a community project. From the stakeholder perspective, the power development fund should pay attention to improve and increase the opportunity of participation of residents and stakeholders, finding the way to increase the perception and knowledge of residents and stakeholders toward the proposal of community projects. From the management perspective, the ERC should focus and update the regulations and policy which can be adapted and applied to all power development funds in designated areas. The ERC should examine and scrutinize the operation and management of the power development fund to reduce the transparency and accountability problems of the power development fund. From the learning and development perspective, the power development fund in a designated area should focus on the evaluation of the performance of employees of the power development fund. The power development fund should set up Key Performance Indicators (KPI), job description, and on the job training. From the environmental perspective, the power development fund should diversify the proposals of community projects by residents and stakeholders in the area. The community projects must have diversity and various types

of projects which are related to the environment, and they need to support renewable energy use. From the social perspective, the power development fund should diversify community projects which are related to social development and diversify the proposals of community projects by residents and stakeholders.

The guidelines for the management of the power development fund will be useful for the ERC to operate and manage the power development fund in a designated area.

The interviews with key informants and applied SWOT analysis lead to applying the Sustainability Balanced Scorecard Theory (SBSC) to be the guideline for appropriate management of the power development fund; with the overall efficiency of operation and management perspective, the power development fund can use the guidelines to enhance equality and fairness on allocating the budget for residents and stakeholders to propose a community project. From the stakeholder perspective, the power development fund should pay attention to improve and increase opportunity of participation of residents and stakeholders, and find the way to increase the perception and knowledge of residents and stakeholders toward the proposal of community projects. From the management perspective, the ERC should refocus and update the regulations and policy, which can be adapted and applied to all power development funds in designated areas. The ERC should examine and scrutinize the operation and management of the power development fund to reduce the transparency and accountability problems of the power development fund. From the learning and development perspective, the power development fund in a designated area should focus on the evaluation of the performance of employees of the power development fund. The power development fund should set up Key Performance Indicators (KPI), job description, and on the job training. From the environmental perspective, the power development fund should diversify the proposals of community projects by residents and stakeholders in the area. The community projects must have diversity and various types of projects which are related to the environment, and they need to support renewable energy use. From the social perspective, the power development fund should diversify community projects which are related to social development and diversify the proposals of community projects by residents and stakeholders. The guidelines will be useful for operating and managing the power development fund in a designated area. The power development fund can use the guidelines to be a tool to improve the operation and management and make all stakeholders satisfied with the operation and management of the power development fund in a designated area. The reason why this study is different from other related studies is because this study collected information from key informants by using SWOT analysis to analyze the operation and management of the power development fund and used those results to create appropriate guidelines for the power development fund under the Sustainability Balanced Scorecard Theory (SBSC). Recently in Thailand, there has been no research which used Sustainability Balanced Scorecard to evaluate performance of the power development fund in Thailand. The related articles about the power development fund in Thailand have mainly focused on the specific power development fund in a selected area. However, this study collected information from six power development funds around Thailand selected by types of fuel mostly used for electricity generation in the power plants, including natural gas, lignite, fuel oil and diesel.

Conflict of Interest

There is no conflict of interest.

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