THE APPROPRIATE MODEL FOR POWER DEVELOPMENT FUND MANAGEMENT IN THAILAND

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ABSTRACT

Title of Dissertation	THE APPROPRIATE MODEL FOR POWER DEVELOPMENT FUND MANAGEMENT IN THAILAND
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This research aimed to evaluate the operation and management of power development fund in Thailand and to propose an appropriate model for managing power development fund in Thailand by using the Sustainability Balanced Scorecard (SBSC). The Sustainability Balanced Scorecard consists of six perspectives which are the overall efficiency of operation and management perspective, the management process perspective, the stakeholder perspective, the learning and development perspective, the environmental perspective and the social perspective. This study used three different data collection methods following the concept of triangulation of qualitative data resources which included: 1) Secondary data, for example, books, journals, articles, theses, reports, and other documents 2) Interviews with key informants, for example, Energy Regulatory Commission, Power Development Fund Department, the employees of power development fund department, the OERC Regional Office managers, the managers of power development fund in category A and B, the employees who work for power development fund in category A and B, the sub-district headmen and village headmen in communities, the residents in communities living in the areas that have received impacts and problems from power plant and receive benefits from the operation and management of power development fund, as well as propose community projects, and get approval or refusal by the power development fund and 3) Observation of the existing community projects around the power development fund in designated area. After the evaluation and analysis of the operation and management of power development fund in Thailand by using the Sustainability Balanced Scorecard (SBSC), the results show that the overall performance of the power development fund category A is 2.75 and the overall performance of the power development fund in category B is 2.80. In power development fund category A, the average score on the overall efficiency of operation

and management perspective is 2.86, the management process perspective is 2.73, the stakeholder perspective is 3, the learning and development perspective is 1.33, the environmental perspective is 3 and the social perspective is 3. In power development fund category B, the average score on the overall efficiency of operation and management perspective is 2.6, the management process perspective is 3, the stakeholder perspective is 2.77, the learning and development perspective is 2.33, the environmental perspective is 3 and the social perspective is 3. From the results, it will come out with the appropriate model for operating and managing power development fund under the Sustainability Balanced Scorecard (SBSC) theory in six perspective. For overall performance, there are example; the power development fund should allocate equality and fairness on budget for residents to propose for community projects, the power development fund should improve the cooperation between public and government representatives, the power development fund should provide knowledge on proposing community projects for stakeholders, the power development fund should set job description for each position who work for power development fund in designated areas, the power development fund should support residents to propose the diversity type of community projects which related to environment and society. For the benefits derived from the application of the model, the Energy Regulatory Commission, the Power Development Fund Department, and the Power Development Fund in designated areas can use the model to be tools to improve the performance of operation and management of power development fund in Thailand. The model not only helps improve the operation and management of power development fund, but also provides benefit to all stakeholders affected by the operation and management of power development fund.

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CHAPTER 1

INTRODUCTION

1.1 Statement of the problems

Nowadays, energy has become one of the most important factors that contributes to the country's economic, social, and environmental development. For the economic sector, the number of investment in the country will increase due to the stability of energy. Economic situation in countries will be stable and continuously improved because of the efficient energy supply. (World Bank. 2009b, 2009) The World Bank indicates that countries with underperforming energy systems may lose up to 1-2 per cent of potential growth annually as a result of electric power outages, over-investment in backup electricity generators, energy subsidies and losses, and inefficient use of scarce energy resources. For the social sector, the standard of living of people or quality of life have been improved by the stability of energy in the country. (AGECC, 2010) A well-performing energy system that improves efficient access to modern forms of energy would strengthen the opportunities for the few billion poorest people on the planet to escape the worst impact of poverty. The electrification will extend to various localities which are distant areas that cannot reach electricity. The stability of energy in the country will decentralize development to provincial areas. For the environment sector, the energy will provide benefit and cause less impact on the environment by inventing clean energy technology or eco- technology. For example, solar energy contributes to sustainable development in the countries. Not only does it benefit the environment but also economy and society. By using clean energy technology, it will help reduce environmental impact or pollution. (Nuclear Energy Agency & Organization for Economic Co-operations and

Development, 2000) Energy resources are available to supply the world's expanding needs without environmental detriment. The environment will be sustained by the clean energy technology or eco-technology which can reduce environmental impact. The environmental problems or pollution emissions which come from the industries will decrease because the industries and business will turn to use eco-technology in their production.

Energy also becomes one of the important factors in our daily lives. Everyone uses energy therefore the demand of energy tends to increase. For this reason, in response to the high demand of energy, the increase of power plant in the country is one of the best solutions to serve the demand on energy. However, the establishment of power plants in Thailand has caused many impacts and problems, including environmental, social, and economic problems. For social problems, power plants have impact on the society surrounding the power plant. The migration of population will take place after a power plant is constructed in the area. People will abandon settlements. (Hunter, 2005) Migration as a demographic process can be associated with environmental hazards in several ways. On one hand, proximate environmental hazards might influence residential decision-making by shaping the desirability of particular locales. For economic problems; the economic situation around the areas of power plant will be changed. The resource generating revenue for the society nearby will change due to the construction and the establishment of power plant. The land used to generate revenue for the society will be used for power plant. For environmental problems, the power plant impacts the environment in the areas around the power plant. The environment might be destroyed by the operation of power plant. The fuel used to produce energy in the power plant will release to the atmosphere as pollution emission which have impact on the environment. (Ashoka D., Saxena M. and Asholekar S.R., 2005) Environmental pollution by the coal based thermal power plants all over the world is cited to be one of the major sources of pollution affecting the environment in terms of land use, health hazards and air, soil and water in particular and thus leading to environmental dangers.

Due to the 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

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 to the balance of natural resources; and to create fairness for power consumers. (Office of the Energy Regulatory Commission, 2016)

"Implementation pertaining to the Fund" will be regulated by the Energy Regulatory Commission (ERC) in compliance with the policy framework prescribed by the National Energy Policy Council (NEPC). The Office of the Energy Regulatory Commission (OERC) is responsible for the receipt, disbursement, keeping, and management of the money of the Fund in conformity with the regulations set forth by the ERC, by separating the Fund account from the OERC budget. The implementation pertaining to the Fund will be subject to inspection by the Office of the Auditor General of Thailand. (POWER DEVELOPMENT FUND under the Energy Industry Act, B.E. 2550 (2007))

"Sources of the Fund" comprise the following: (1) contributions from electricity industry licensees in accordance with the announcements issued by the ERC under the policy framework of the NEPC; (2) fines collected from electricity industry licensees who violate or fail to comply with the ERC orders; (3) donated money or assets; and (4) interest or any benefit incurred from the money or assets of the Fund. (POWER DEVELOPMENT FUND under the Energy Industry Act, B.E. 2550 (2007))

Presently, the ERC has issued an announcement pursuant to the policy framework of the NEPC, requiring electricity generation licensees to send contributions to the Fund, which can be divided into two cases namely (1) during the plant construction, at a rate of 50,000 Baht/MW/year, and (2) during the plant commission, at a rate classified by fuel type used for power generation, ranging from 1-2 satangs/kilowatt-hour (kWh) (or satangs/unit), as shown below. (POWER DEVELOPMENT FUND under the Energy Industry Act, B.E. 2550 (2007))

However, even power development fund has been decentralized in order to develop each area in social, economic and environment sectors. However, nowadays the operation and management of power development fund in Thailand has a lot of problems. For example, the management of budget that distributes the power

development fund in each category is not appropriate because people living near the power plant do not get any benefit from the power development fund.

Recently, there has been research related to performance evaluation of power development fund in a specific location. But this study will focus on the power development fund in each category. From related articles from other researchers, they use SWOT analysis technique to analyze information from interviews. The SWOT analysis then results in the appropriate model 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, the lesson from management of the power development fund, a case study of Plaukdaeng district area (Rayong province). Some studies only focus on the performance of power development fund in a specific perspective but they do not focus on all perspectives which cover the management and performance of power development fund. Some studies focus on the operation and management of power development fund in the specific location. For example, the developing achievement of Nam Phong Power Plant Energy Tax Fund, Khon Kaen province (Trikritwatanakul, 2011), the people participation in clean energy fund activities for community development surrounding Kaeng Khoi Power Plant (Amronprom, 2013), EGAT and quality of life development of communities in Mae Moh power plant, Mae Moh district, Lampang province (Kunupatum, 2014).

The problems lead to the study to evaluate the operation and management of power development fund in Thailand. This study will use Sustainability Balanced Scorecard theory (SBSC) to evaluate the operation and management of power development fund. After the evaluation and analysis of the results, it will come out with an appropriate model for operating and managing power development fund. As for the benefit from this study, the Energy Regulatory Commission, the power development fund department, and the power development fund in designated area can use the model to improve the performance on the operation and management of power development fund in Thailand. The evaluation model in each perspective under Sustainability Balanced Scorecard (SBSC) will serve as the tool to guide and help power development fund to achieve more efficiency and effectiveness on the operation and management and might solve some problems recently faced by some power development funds in

Thailand. This research study does not focus on performance evaluation of power development fund in specific location but on power development fund in category A and B and also in different locations around Thailand.

1.2 Research Questions

1.2.1. How have the operation and management of power development fund been carried out?

1.2.2. What are the problems of the operation and management of power development fund in designated area?

1.2.3. What should the operation and management of power development fund be?

1.3 Research Objectives

1.3.1 To evaluate the operation and management of power development fund in Thailand.

1.3.2 To propose an appropriate model for managing power development fund in Thailand

1.4 Scope of Study

1.4.1 Content Scope:

The scope of study covers the operation and management of power development fund in Thailand and evaluates the effectiveness of operation and management of power development fund in Thailand under the principle of Sustainability Balance Scorecard (SBSC).

- Evaluate the operation and management of power development fund in Thailand in terms of effectiveness, stakeholders, management process, learning and development, social impact, and environmental impact.

- Study problems and obstacles of the operation and management of power development fund in Thailand.
- Set up a model to improve the operation and management of power development fund in Thailand. The model will assist the management of power development fund in Thailand which leads to solve the operation and management problems of power development fund in Thailand.

1.4.2 Area Scope:

Power development funds in Thailand which are divided into category A and B

1.4.3 Timing Scope:

The evaluation of the operation and management of power development fund in Thailand takes place between March 2017 – March 2018.

1.4.4 Population Scope:

The key informants are

1.4.4.1 The Energy Regulatory Commission (ERC)

1.4.4.2 The power development fund department fund

1.4.4.3 The employees of the power development fund department

1.4.4.4 The OERC regional office managers

1.4.4.5 The managers of the power development fund category A and B

1.4.4.6 The employees of the power development fund category A and B

1.4.4.7 The community development committee (CDC) and Tambon Development Committee (TDC)

1.4.4.8 The sub-district headmen and village headmen

1.4.4.9 Residents in communities who propose community projects and get approval or refusal by the power development fund

1.5 Expected Results

1.5.1 The results of operation and management of power development fund in Thailand in terms of Sustainability Balanced Scorecard and the effectiveness of

management of power development fund in Thailand will help ERC to use as an evaluation method or a tool to apply and adapt for power development fund in Thailand.

1.5.2 The obstacles, problems of the operation and management of power development fund in Thailand, from interviews with key informants, will lead to find obstacles and problems of the operation and management of power development fund.

1.5.3 The appropriate model for power development fund management in Thailand will be used to improve the operation and management of power development fund in Thailand.

1.6 Definitions for this study

1.6.1 The Appropriate Model means the operation and management model of power development fund in Thailand which can apply to the operation and management of power development fund and provide benefit to all stakeholders.

1.6.2 Effectiveness of power development fund means the efficiency and ability of the power development fund in designated area on the operation and management of the power development fund under the objectives of the power development fund set up under the Office of the Energy Regulatory Commission (OERC).

1.6.3 Success of power development fund in Thailand means the operation and management of most of the fund that meet the objectives namely: to be used as capital to enhance extensive electrification to various localities, to decentralize 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 to the balance of natural resources; and to create fairness for power consumers. The success of power development fund relates to the objective of setting up power development fund.

1.6.4 The overall efficiency of operation perspective means the role of power development fund on the operation and management by focusing on the performance of power development fund toward the objectives of setting up power development fund. The power development fund has a role to support and develop the society and

communities under the proposal of community projects by residents in community area. The community projects proposed by the residents must be related to the renewable energy development, job creation, and increased income for residents. Moreover, it should help extend electrification to the communities in distant areas.

1.6.5 The management process means the management of power development fund which provides benefit to other related sectors and to all stakeholders. For example, the coordination, participation, and opportunity provided to manage power development fund for related sectors and stakeholders, reporting on the progress of operation and management to related organizations and all stakeholders, opportunity provided for related organizations and all stakeholders to participate in the operation and management, as well as providing of information and disclosure of the operation and management for related organizations and all stakeholders to examine and scrutinize the operation and management of power development fund.

1.6.6 The stakeholders means the role of stakeholders who are ERC, officer at power development fund department, the director of the office of the Energy Regulatory Commission Regional Office (OERC), the manager of power development fund in designated area, employees who work for power development fund in designated area, the owner of power plant, the local administrative organization, the sub-district headmen, the village headmen who might be selected to be representatives of Community Development Committee (CDC) and Tambon Development Committee (TDC) and residents who have opportunity to write and propose for community projects. This perspective focuses on the roles of stakeholders to participate in operation and management of power development fund, for example, attendance of public forums, opportunity to write and propose the community project, and opportunity to receive the budget allocated by power development fund to community, as well as the opportunity to examine and scrutinize the performance of power development fund.

1.6.7 The learning and development means the role of power development fund to provide knowledge and training for employees of power development fund in designated area. The amount of learning and activities that power development fund provide to employees of power development fund and also the ability of power development fund to provide necessary knowledge such as the regulations of power development fund, the procurement regulation for the employees of power development fund so that they can apply to their work.

1.6.8 The environment perspective means the role of power development fund which focuses on the significance of the environment around the power plant from the operation of the power plant such as air pollution, water pollution. The power development fund will support and allocate budget for residents in the community to propose community projects which solve the pollution problem.

1.6.9 The social perspective means the role of power development fund on budget allocation for residents to formulate community project which help to rehabilitate and recover society from the impact of the operation of power plant, the community project will create job and generate income for residents in community, foster social cooperation in communities and support medical and health care service.

CHAPTER 2

LITERATURE REVIEW

2.1 Evaluation Theory

According to the explanation by Weiss Carol Hirschon (Marvin C Alkin, 2013), evaluation is a kind of policy study and a political activity. It is political in that the activities of evaluation, both as a process and in terms of research findings, affect the political context and are affected by it. There are three distinctive attributes of evaluation namely: (1) Its task – to find out how interventions are functioning, what kind of effects they are having, and how well they satisfy the needs and desires of their several constituencies (2) Its situation- as part of the world practice, evaluation should be responsive to the desires and wants of program constituents, and (3) Its mission – to contribute to social, economic, and cultural improvements. It benefits from insight and sensitivity to context as well as from methodological expertise. Evaluation has become prevalent as it promises to provide unbiased and accurate information.

According to the statement of Daniel Stufflebeam, along with Guba Daniel Stufflebeam, along with Guba (Marvin C Alkin, 2013), evaluation should provide a continual information stream for decision - makers to ensure that the services of programs are continually improved . To improve services, evaluation should aid decision - makers in allocating resources to programs that best serve clients. Evaluations should be grounded in clear contracts, citing the feasibility standard of formal contracts. The main use of evaluations is to guide and strengthen enterprises, issue accountability reports, help disseminate effective practices, and, as appropriate,

make decision makers, stakeholders and consumers aware of enterprises that prove unworthy of further use. Evaluation is a ubiquitous process that applies across national boundaries and to all disciplines and service areas.

Darlene Russ-Eft and Hallie Preskill (Darlene Russ-Eft, 2001) explain that evaluation is a systematic process; a planned and purposeful activity; a mechanism for collecting data on questions or issues; a process for enhancing knowledge and decision-making as a means of judging the evaluand's merit, worth, or value. Evaluation should be conducted with the intention of using the results. Evaluation may be developmental, formative, summative, or any combination of these.

Donna Mertens (Marvin C Alkin, 2013) states that the evaluation is conducted within the context of the program's entirety in a way that discourages bias-not to advocate for one group over another. A primary goal of inclusive/transformative evaluation is to challenge the status quo in a quest to transform society.

Edward Suchman (Marvin C Alkin, 2013) defines evaluation as the determination of the results attained by some activity designed to accomplish some valued goal or objective. Suchman's identification of five categories of evaluation includes the following: (1) Effort (the quantity and quality of activity that takes place) (2) Performance (effect criteria that measure the results of effort) (3) Adequacy of performance (degree to which performance is adequate to the total amount of need) (4) Efficiency (examination of alternative paths or methods in terms of human and monetary costs) and (5) Process (how and why a program works or does not work).

Hallie Preskill (Marvin C Alkin, 2013) defines evaluation as a catalyst for individual, group, and organizational learning. As such, it is change-oriented and constitutes an intervention at whatever levels it is conducted. Evaluation should be conducted only when there is an intention to use the findings. Such use might reflect any type of use, for example, instrumental, conceptual-enlightenment-knowledge, and political-symbolic-persuasive. Evaluations should focus on questions that matter; they should reflect the strategic information needs of the organization or community and

should be designed to inform decision-making and potential actions. Expected use of evaluation processes and findings should guide an evaluation's design and implementation.

Michael Scriven (Scriven, 1991) defines evaluation as the process of determining the merit, worth, or value of something, or the product of that process. Evaluation is not the Terms used to refer to this process or parts of it including: appraise, analyze, assess, critique, examine, grade, inspect, judge, rate, rank review, study, and test.

Melvin M. Mark and Gary T. Henry (Mark, M. M., Henry, G. T., & Julnes, 2000) expand the list of evaluation purpose to four issues namely: (1) Overall assessment of merit and worth, when evaluation is interned to support bottom-line judgments (2) Program (and organizational) improvement, when evaluation is meant to point to changes in a program (or the organization providing it) (3) Accountability and oversight when evaluation is designed to provide information about a program's compliance with legislative or other mandates and (4) Knowledge development when the goal is for evaluation to expand understanding, for example, of the nature of a social problem or the feasibility of implementing a new approach to its solution.

Peter H Rossi (Marvin C Alkin, 2013) mentions evaluation as social research applied to answering policy-oriented questions. As such, an important criterion for judging evaluations is the extent to which they successfully apply the canons of social research. The primary aim of evaluation is to aid stakeholders in their decision-making on policies and programs. This implies that evaluation findings are to be made available to stakeholders but may or may not be critically influential in decision-making. Evaluators should try to be useful within the limits of professional ability and ethics, but being useful is not a primary goal. "Getting it right" is more important than "getting along".

Stephen Kemmis (Marvin C Alkin, 2013) states that the evaluation means the process of marshalling information and arguments which enable interested individuals and groups to participate in critical debate about a specific program. The evaluation

consists in harnessing and refining the ubiquitous processes of individual and public judgment, not in resolving or replacing them with technology of judgment.

The Joint Committee's (Thousand Oaks, 1994) states that "evaluation is the systematic assessment of the worth or merit of an objects".

(Asrofah, Rosana, & Supahar, 2017) mention that when conducting the evaluation, it needs tools/instruments to evaluate a program. Proper evaluation instruments will create evaluation results in accordance with the purpose of the evaluation. To produce a proper evaluation instruments, it would require a needs analysis. A minimum program consists of three components, namely input, process, and output. An understanding of the instrument is important for the evaluation and assessment practices. In general, teachers always apply the measurement process.

From the evaluation theory, there are many types of evaluation tools that are usually used to evaluate and analyze the performance of organization, products, services, as well as market, for example, SWOT Analysis, CIPP Model, Balanced Scorecard, or Sustainability Balanced Scorecard, etc.

The SWOT analysis is a precursor to strategic planning and is performed by a panel of experts who can assess the organization from a critical perspective (Gibis et al. 2001). CIPP model is Context, Input, Process, Product approach, developed by Stufflebeam (1983). The CIPP evaluation model is systematically designed as an evaluation guide in compiling relevant questions and early behavioral assessments of the project (context and input evaluation), while during project implementation (input and process evaluation) and at the end of the project (product evaluation) (Guili, 2011). The Balanced Scorecard is a new framework for integrating measures derived from strategy. While retaining financial measures of past performance, the Balanced Scorecard introduces the drivers of future financial performance. The drivers, encompassing customer, internal- business- process, and learning and growth perspective are derived from an explicit and rigorous translation of the organization's strategy into tangible objectives and measures.According to Kaplan and Norton (1992), a balanced scorecard (BSC) is a performance management measurement that uses four perspectives to assess performance in a company namely: financial, customer value, business process, and learning & growth (Kaplan & Norton, 1992). The BSC is an effective way to define and capture intangible assets that have value in organizations.

The BSC is an effective way to define and capture intangible assets that have value in organizations. The BSC helps improve financial returns, increasing employees' performance, focusing on target strategies, increasing collaboration, and aligning the overall goals of a company (Niven, 2006). (R. S. Kaplan & Norton, 1996). (Johnson, 1998) state that an SBSC is an essential context to bring together environmental issues and corporate strategic management goals regardless of the approach that would be followed for its development. SBSC has lately been considered an essential tool to design and achieve the key objectives of corporate sustainability management.

In conclusion, evaluation is the process of determining the merit, worth, and value of things, and evaluation is the product of that process. Evaluation requires an accurate description of the program performance or characteristics at issue and assessment of them against relevant standards or criteria. Evaluation is a process of reviewing the information which gains through the assessment and finds the meaning of information. The judgment and decision-making on evaluation based on the information collected. The evaluation assesses the conceptualization, design, implementation, impact, and efficiency on something. The result from evaluation can conduct new finding, new knowledge; improve organization development, and also may respond to the stakeholder's requirement.

The evaluation of the efficiency of power development fund means the process which lead to gain the information of the operation and management of power development funds. After receiving the information, analysis is then conducted on what the power development funds should do in the future to make the operation and management successful. The result from the evaluation will come out with a model which is appropriate to apply to use in all of power development fund in Thailand.

This research chooses Sustainability Balanced Scorecard (SBSC) theory to be a tool to evaluate the performance of power development fund. Because the operation and management of power development fund need to focus on and evaluate internal process on management of power development fund; evaluate the financial process management and performance on budget to allocate to all power development fund in each category; evaluate the stakeholders' management who receive impact from the operation of power plant and power development fund support budget for stakeholders to propose and formulate community projects in communities area; the learning and

growth management of employees who work for power development fund; environment and social management which power development fund need to be concerned with because power development fund allocates budget for residents in communities to formulate community projects and power development fund needs to make sure that those community projects provide benefit to environment and society and must not impact environment and society. Therefore, compared to other evaluation tools, Sustainability Balanced Scorecard (SBSC) is suitable as a tool to evaluate the performance of power development fund.

2.2 Balanced Scorecard (BSC)

2.2.1 Background and Concept

The concept of the Balanced Scorecard was developed in the early 1990's as a new approach to performance measurement because of problems of short-termism and past orientation in management accounting (R. S. Kaplan & Norton, 1992). The concept of the BSC is based on the assumption that the efficient use of investment capital is no longer the sole determinant of competitive advantage but, increasingly, soft factors such as intellectual capital, knowledge creation, or excellent customer orientation are becoming more important.

The Balanced Scorecard is balanced in that it shows both the internal and external aspects of the business. It indicates the internal processes important to achieve business results, but also the external view from the customers' and market position (Olve, N. G., Petri, C. J., Roy, J. and Roy, 2003).

The balanced scorecard was developed by Robert Kaplan and David Norton (R. S. Kaplan & Norton, 1996) in the early 1990s. It is noted to be a strategy management tool not only a measurement, where assessment, improvement, and reporting are linked together to form a strategic plan but the key to this plan is turning strategy into action. The balanced scorecard is useful for finding financial measures, but cannot predict future values of the company made through investments in customers, suppliers, employees, technologies, processes and the like. The balanced scorecard allows

companies and organizations to clarify their visions and strategies, while translating them into action. It also provides feedback on the internal business processes and the external outcomes of those actions and is therefore able to be used as a continuous improvement tool for finding the most strategic performances and results (R. S. Kaplan & Norton, 1996).

The Balanced Scorecard is a new framework for integrating measures derived from strategy. While retaining financial measures of past performance, the Balanced Scorecard introduces the drivers of future financial performance. The drivers, encompassing customer, internal-business-process, and learning and growth perspective are derived from an explicit and rigorous translation of the organization's strategy into tangible objectives and measures. (R. S. Kaplan & Norton, 1996) explain the following:

"The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation."

The BSC aims to integrate intangible assets in the management system in a more efficient way. It has been developed in the early 1990s by R. Kaplan and D. Norton to help companies better manage such intangible assets such as "intellectual and organizational capital" as the value drivers for future success. Mostly traditional management tools focus primarily on financial results, which are inherently lagging indicators. However, for business to successfully manage its future performance, a system is needed based on leading indicators of business success. The BSC analyses the expected future contribution to financial performance of such intangible assets. The BSC's four perspectives can be characterized briefly as follows:

The financial perspective indicates whether the transformation of a strategy leads to improved economic success. Thus, the financial measures assume a double role.

On one hand, they define the financial performance a strategy is expected to achieve. On the other hand, they are the endpoint of cause and effect relationships referring to the other BSC perspectives. The financial perspective represents the long-term goal of the organization: to provide superior returns based on the capital invested in the unit. The balanced scorecard can make the financial objectives explicit, and customize financial objectives to business units in different stages of their growth and life cycle.

The customer perspective defines the customer/market segments in which the business competes. By means of appropriate strategic objectives, measures, targets and initiatives the customer value proposition is represented in the customer perspective through which the firm/business unit wants to achieve a competitive advantage in the envisaged market segments.

The internal process perspective identifies those internal business processes that enable the firm to meet the expectations of customers in the target markets and those of the shareholders.

Finally, the learning and growth perspective describes the infrastructure necessary for the achievement of the objectives of the other three perspectives. In this case the most important areas are qualification, motivation, and goal orientation of employees, and information systems.

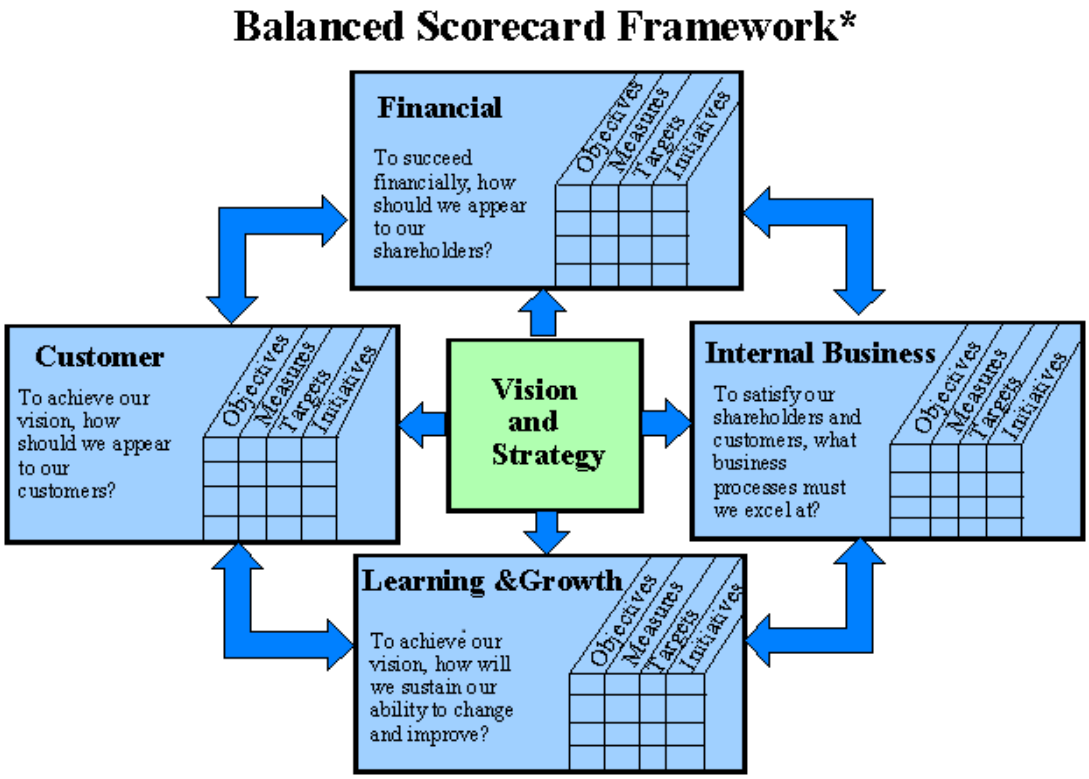

Figure 2.1 The Balanced Scorecard Framework

Source: R. S. Kaplan & Norton, 1996

The purpose of BSC is to formulate a hierarchic system of strategic objectives in the four perspectives, derived from the business strategy and aligned towards the financial perspective. Based on such a causal system of objectives, corresponding measures are formulated in all four perspectives. Kaplan and Norton basically distinguish between lagging and leading indicators.

The BSC provides a valuable tool for enabling employees to understand the organization's situation. It also provides information for management as the organization starts to develop and documents on a continuous basis those measures for control which most quickly will guide it towards achieving its goals and its vision.

The BSC was introduced as an alternative concept of performance measurement and management that balances financial measures (results from past activities) and operational measures (drivers of future performance) and helps controlling for corporate

performance in several areas simultaneously. The crucial point is that these operational measures can have different characters, quantitative and qualitative, financial and non-financial.

In this study, the BSC concept is adopted to assess the operation and management of power development fund because the perspectives of BSC cover the operation and management of power development fund. For example, the internal process is management of power development fund, the financial management is distribution of budget to formulate community project, the concept of knowledge and training for employees in power development fund and also the customers or stakeholders who are groups of people who receive the benefit or impacts from the operation and management of power development fund. With this theory, the BSC will help evaluate the performance of power development fund in Thailand and it will help find the appropriate model for power development fund in Thailand.

2.2.2 Problems of the implementation of balanced scorecard

According to (R Othman, n.d.), one reason why BSC initiatives fail is that many initiatives are not Balanced Scorecard programs in the first place. He goes on to say that very often organizations do not understand what exactly the Balanced Scorecard is and what its implementation involves, regardless of whether they implement the BSC themselves or whether they hire a consultant from the outside.

According to (Olve, N. G., Petri, C. J., Roy, J. and Roy, 2003), the absence of executive sponsorship will harm every BSC initiative. Top management should stand behind such an initiative since the BSC is a tool for executing company strategy. Top management should explain to the other members of the firm why the BSC is so important. Of course, it is not enough to talk about the benefits the BSC may bring. In order for the BSC to gain credibility, top management must trust it and strongly believe that it will improve the company. Only if employees feel such faith in the BSC is there a chance of success.

A lack of education of top management and team members in charge of building the BSC will certainly be a big minus. If those who are supposed to promote and stand behind the initiative do not fully understand what they are trying to transfer to others, how can someone else trust them? The essence of any BSC initiative is to lead people throughout the organization to implement the strategy. If those people do not understand the tool in depth, there is no chance that they will find the right path to do this.

According to (Niven, 2015), the Scorecard has its roots in the organization's strategy which should align the organization from top to bottom and guide all action and decisions towards the organizational aims. There may theoretically be a Balanced Scorecard without a strategy. But in practice this would not be implementing the real essence of the concept which translates the strategy by stimulating communication through the measurement of performance, and which initiates change and inspires initiatives. Further, (Niven, 2015) emphasizes that the BSC could perhaps be developed without the background of the strategy, but this would be perceived as another performance management system, and other benefits of the BSC would never be gained.

The Scorecard is a tool which should improve communication within an organization. It should cover the organization as a whole. Many initiatives have been unsuccessful because organizations have not recognized the need to address the Balanced Scorecard to all the points where the business logic, ambitions, and achieved performance are discussed (Olve, N. G., Petri, C. J., Roy, J. and Roy, 2003) (Niven, 2015) emphasizes that any successful strategy implementation must be understood and acted on at every level of the firm. (Rozhan Othman, Domil, Senik, Abdullah, & Hamzah, 2006) discuss the mistake of implementing and using the BSC in an arbitrary and top-down manner. In their view, this approach will lead to lack of commitment from the rest of the firm other than the project team and top management, and it will be poorly understood.

In conclusion, Balanced Scorecard is framework or management system that translates strategy into action that drives the performance. The balance scorecard is strategic planning and management tools to evaluate in industry and business, nonprofit

organizations and governing on the performance. The balance scorecard is a measurement system that links strategy objectives to comprehensive indicators. The balance scorecard assists performance measurement to be effective and more challenging in implementing strategy. The Balance Scorecard measures the performance and assesses four perspectives namely financial perspective, customer perspective, internal process perspective, and learning and growth perspective. Each perspective provides different view in industry and business, nonprofit organizations, and governing on the performance.

2.2.3 Balanced Scorecard in Government and other non-profit organization

2.2.3.1 Concept and Perspectives

Most non-profit and government organizations have difficulty in operating in the original architecture of the BSC that the financial perspective is placed at the top of the hierarchy. The achieved financial success is not primary objective for most of non-profit and government organizations. Therefore, the architecture is rearranged to place customers or constituents at the top of the hierarchy (R. Kaplan & David, 2001)

In a private sector transaction, the customer both pays for the services and receives the service that cannot be separate. But in non-profit organization, donors provide the financial resources, such as tax. They pay for the service while another group, the constituents, receives the service. Organization can place both the donor perspective and the recipient perspective at the top of the BSC. They develop objectives for both donors and recipients and for both groups of customers (R. S. Kaplan & Norton, 2001)

Kaplan and Norton (R. Kaplan & David, 2001) suggests that non-profit and government agencies should consider placing an overarching objective at the top of their scorecard that represents their long-term objective, such as reduction in poverty or improvements in the environment. Therefore, the objectives within the scorecard can be toward improving the goal of organization (Figure 2.2)

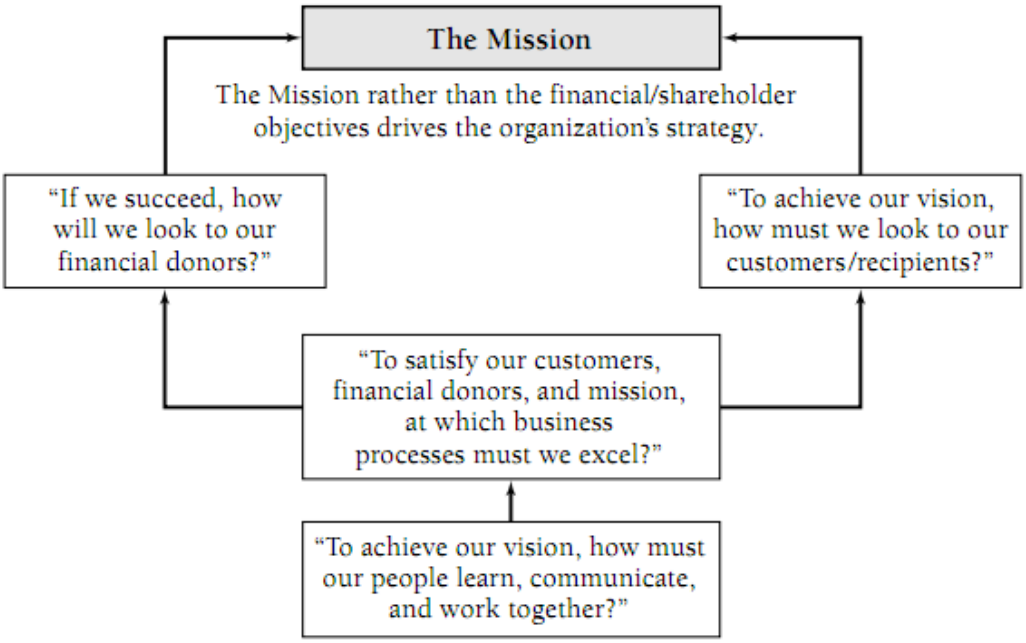

Figure 2.2 Adapting the Balanced Scorecard Framework to Nonprofit Organizations
Source: R. Kaplan & David (2001)

In non-profit organizations, there rarely is any such long-term, single goal. Instead, scorecards have an important role in enabling discussions about trade-offs between diverse interests, and the general level of ambition within a specific policy area. Scorecards have been introduced in central and local government organizations in several countries. It seems that the more successful cases so far are found at lower levels in such organizations, where scorecards provide ordinary employees with an opportunity to clarify roles and expectations, and to present their view of "business logic" to their superiors.

The four perspectives in the scorecard will need to be reinterpreted somewhat in the case of government or other non-profit organizations

- Financial perspective. An owner's or principal's perspective, showing the ultimate contribution to the needs addressed by the organization.
- Customer perspective. An "external" perspective, describing how successful the organization is in reaching and interacting with all its

contracts in society. In addition to serving customers, such a company, many organizations interact with less willing clients.

- Process perspective. No major changes, since internal processes of all organizations should be efficient and well managed. Just as in any scorecard, the principals of non-profit organization should take an interest in how its "capital" of processes in maintained and utilized. Improvements may not yet have been fully recognized by the organization's clients, just as in a business firm.
- Development perspective. Likewise, non-profit organizations will need to import and implement new technology and new skills as in any business.

2.2.3.2 Problem to the implementation of balance scorecard in public organization (Problems in Developing and Using Balanced Scorecard; source: ("Applying the balanced scorecard concept: An experience report," 2001).

1) Problems in developing the Balanced Scorecard

- Lack of decision-making aids for generating strategic goals, measures and targets.
- Over-complexity of too many cause-and-effect chains.
- Problems in Derivation of reliable future-orientated statements due to lack of predictability regarding lifecycle development.
- Lack of scholarly literature on developing balanced scorecard.

2) Problems in using the Balanced Scorecard

- Amount of Time and Energy required in recording and monitoring the defined measures.
- Non-Acceptance of new measures alongside the numerous measures already present.

2.2.4 Balanced Scorecard Approach in Thailand

Every organization strives for management excellence. To achieve this, staff will try to use the new management tool which is believed to be the most beneficial. At present, there are various kinds of management tools and techniques such as strategic planning, total quality management, balanced scorecard, outsourcing, best practice, benchmarking, activity-based management, customer relationship management, etc. Balanced Scorecard (BSC) is one of the most widely known management tools.

Although BSC was originally introduced as a tool intended for private organizations, it is now used in the public sector and Thailand is one of many countries utilizing the BSC.

2.2.4.1 The Concept of Utilizing BSC in the Thai Public Sector

The adoption of BSC is a part of result-based management concept. In every step of management process (Plan, Do, Check and Act), the focus is on achieving the desired targets.

The BSC is implemented to drive the organization to reach its goals and reasonably link all internal factors with the desired targets. Apart from driving the success of the organization goal in compliance with the plan, BSC is used for driving staff to perform under the model specified by the law.

The concept of BSC in the Thai public sector is not wholly adopted. Its concept was applied to suit the context of the Thai public sector. The application of BSC has been continuously studied and improved thereby it can propel the public sector to make changes and reach the goals of the Thai public sector development and the Rules and Procedures for Good Public Administration, B.E. 2546 (2003).

The utility of BSC was to drive the government agencies to conduct organizational performance evaluation. Every perspective of BSC had to be interlinked which allowed the government agencies to reach the goal of their strategic plan and responded to the needs of customers and stakeholders. If the organization did not set its strategic plan and strategic management process beforehand, BSC could help

government agencies achieve their core missions. Besides, BSC could lead the public sector to set up management system for work process, people, finance, and IT.

During that time, BSC consisted of four perspectives. Each perspective had a precise performance evaluation identified by Key Performance Indicator (KPIs) which could push forward the operation. The electronics system was used in order to report the performance in the form of scorecard and all of the four perspectives were interlinked as per below:

Table 2.1 Applied Balanced Scorecard for Thai Public Sector (Pairuchvet, n.d.)

External Perspective Customers, Academies, Public sectors, State enterprises, Government agencies, and interested parties	**Internal Perspective** Staffs' knowledge, Skills, Competencies, Morality, Moral support, Ethics, Work process, and Organization culture
Innovation Perspective Networking, and Inspection system of information and IT	**Financial Perspective** Value-for-money, Effectiveness, The uses of fiscal budget according to the objectives, and The audit systems

The adoption of BSC in Public Sector was closely supervised and was a cooperation between government agencies' working group and the consulting team. BSC was tailor-made for different government agencies as they set their own critical success factors and KPIs. The government agencies' working group had to be closely supervised because BSC was a new issue for them. Therefore, only 48 government agencies (from the overall 142 excluding provinces and universities) adopted BSC for performance evaluation.

2.2.4.2 The Success Factors of the BSC implementation

The adoption of BSC in the Thai Public Sector is successful to some extent as every government agency in Thailand (18 ministries, 141 departments, 73 universities, and 75 provinces) can employ BSC at the same time and understand the approaches at the same direction. This is because the Thai Public Sector already has the precise strategies and has been affected by the factors as follows;

1. The Rules and Procedures for Good Public Administration, B.E. 2546 (2003) It specifies that all government agencies need to operate in accordance with the directions set in this law. When these directions are included in BSC, the government agencies need to use the specified BSC.

2. The Intention of the Executives

The Prime Minister, the Cabinet, and executives of government agencies pay attention to the adoption of BSC in the public sector. The executive can be a leader and change agent to translate the plan into action.

3. The Performance Agreement

The heads of the government agencies sign the performance agreement with their superior executives. These heads show the intention that they would deliver outputs according to the level of KPIs. They will be also responsible for the agreement.

4. The Incentives Scheme

The performance evaluation in accordance with BSC is linked with the annual bonuses.

5. The Appropriate Structure of Public Sector

All Government agencies are required to set up Public Sector Development Group. This group is responsible for developing public sector management system which can drive new issues in their organizations.

6. Communication Process

There are various channels of communication so staff is able to perform successfully. The communication channels are such as:

- Hiring of consultants to help the public sector operation
- Organizing the meeting to create an understanding for government agencies or communicating through video conference
- Distribution of CDs from the meeting on important issues
- Distribution of operational manuals
- Hot line service
- Mobile clinics in many government agencies and provinces to provide advice on important issues

OPDC Website containing relevant issues (“OPDC website”)

7. The Attempt to Make Changes

Public sector executives and staff have courage to initiate the implementation of BSC although it could not be perfectly used at the beginning. However, BSC has been improved and adapted to be suitable for the changing environment. Public sector executives and staff intend to do things differently and do not abide by the theory or the existing modules. They can adjust it to suit their organization context.

Recently in Thailand, there has been research that applied BSC for evaluation, for example, the performance of the environmental management of local governments in Thailand (Panya, Poboon, Phoochinda, & Teungfung, 2018). This research uses the BSC theory to evaluate the performance of environment management in case of local government in Thailand by focusing on four perspectives of BSC theory. However, the BSC technique does not cover environmental and social aspects as essential pillars of a sustainable business. So, new methods are developed for curing the problem. (Figge, Hahn, Schaltegger, & Wagner, 2002a) believe that BSC can help by taking all relevant aspects into account simultaneously to achieve sustainability and in a balanced manner. Since the BSC has high potential to integrate environmental and social aspects into the general management system, the BSC has been combined with sustainable parameters,

called the sustainability BSC (SBSC), to provide a meaningful instrument to the sustainability management (Chai, 2009).

The power development fund in Thailand can adapt the balanced scorecard theory to apply in the operation and management. The power development fund need to manage money that is distributed to local people to formulate community projects related to financial management perspective of balanced scorecard. The customer perspective in terms of power development fund means the stakeholder who are affected by the operation and management of power development fund which power development fund need to remedies from the impact of power plant. The internal management of power development fund can be evaluated and measured by using internal process perspective of balanced scorecard. The learning and growth perspective of balanced scorecard is related to the power development fund in Thailand because employees or staff of power development fund should receive learning and developing skill for their work. Therefore, the learning and growth perspective will benefit by evaluating the efficiency of learning and growth process of power development fund. The balanced scorecard will help power development fund to evaluate the performance for those perspective and bring appropriate solution and model which help the operation and management of power development fund.

2.3 Sustainability Balanced Scorecard

Twenty years after Kaplan and Norton saw reasons for the development of their concept, a different type of significant changes and challenges lies in front of entrepreneurs and managers: However normative, one can say that the greatest challenge of the coming decades is to realize corporate sustainability as unavoidable contribution to sustainable development of the economy and society (Burritt & Schaltegger, 2010) (Stefan Schaltegger & Burritt, 2005). Companies are moving from challenges of disrupting information technologies to challenges of corporate sustainability. Accordingly, management research tries to support and guide

entrepreneurs and managers through the development of more appropriate management instruments, concepts, and systems (Bundesverband der Deutschen Industrie (BDI) & Centre for Sustainability Management, 2002); (Stefan Schaltegger & Burritt, 2005). As discussed above, the BSC is able to integrate soft, intangible, and qualitative aspects. Nevertheless, it has to be developed further to become an integrated system of corporate sustainability management. In this context, research brought forth different approaches to developing SBSCs to integrate sustainability aspects into corporate performance measurement and management systems (Bieker, T. & Waxenberger, 2002) (Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2001b) (Epstein & Wisner, 2001) (Figge et al., 2002a) (Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2001a) (Figge & Hahn, 2002) (Tobias Hahn & Makus Wagner, 2002) (Figge & Hahn, 2002) (Bieker, T. & Waxenberger, 2002) (Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2003) (S. Schaltegger & Wagner, 2006a).

From a methodological point of view, the main question is where and how to integrate environmental and social aspects of sustainability. Hansen identifies four basic approaches in the literature (Hansen, 2010):

- Integrating environmental and social aspects into the four standard perspectives (Epstein & Wisner, 2001)(Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2001b) (Figge et al., 2002a)(Tobias Hahn & Makus Wagner, 2002).
- Adding further perspectives to the standard BSC layout to take up sustainability issues (Bieker, T. & Waxenberger, 2002)(Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2001a)(R. Kaplan & David, 2001)(Figge & Hahn, 2002)(Figge et al., 2002a)(Tobias Hahn & Makus Wagner, 2002).
- Changing the original hierarchy and replacing the financial perspective with a sustainability perspective (Sigma Project, 2003);
- Adding further perspectives to guide the financial perspective at the top (Van Der Woerd & Van Den Brink, 2004).

(Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2001a)(Figge & Hahn, 2002)(Figge & Hahn, 2002)(Figge et al., 2002a) (Tobias Hahn & Makus Wagner, 2002)(Gminder, Bieker, Hahn, & Wagner, 2002) (Bieker, Dyllick, Gminder, & Hockerts, 2001) (Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2003) The scholars

work out a comprehensive SBSC concept comprising different methods of integrating sustainability aspects and a complete process of formulating SBSC according to the first two approaches mentioned above.

The SBSC concept is based on the "traditional" Balanced Scorecard (BSC), a management tool and methodology developed by Kaplan and Norton in 1997 (see Kaplan & Norton 1997). The idea to use the tool also for the purpose of environmental management is not completely new and has already been suggested by Kaplan & Norton. In recent years, the research project "A Management Cockpit for Corporate Sustainability" has developed the BSC further to the SBSC as a concept for sustainability management (Epstein & Wisner, 2001)(Gminder et al., 2002);

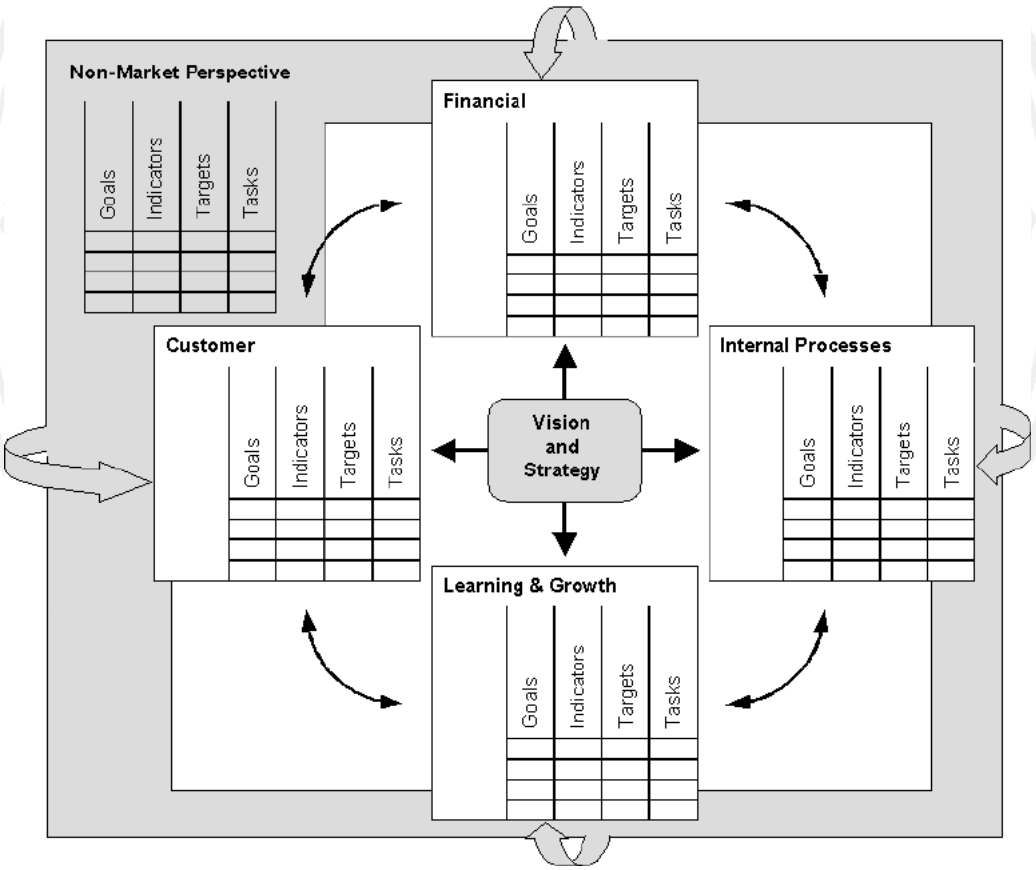

Figure 2.3 Balanced Scorecard enhanced by nonmarket perspective, Balance Scorecard enhanced by nonmarket perspective

Source: Figge et al. (2002a)

The sustainability balanced scorecard is another internal management tool used to formulate and implement sustainability goals from a company's strategic plan.

(Figge, Hahn, Schaltegger, & Wagner, 2002b) see it as system that could be used to integrate stakeholder demands into the core management systems of companies and manage those demands in an effective and efficient way. Traditionally, the balanced scorecard excludes these social and environmental issues. With sustainability as part of the overall business scorecard, the focus shifts to three main pillars of productivity (triple bottom line); environmental, economic, and social benefits. When these factors are made part of the balanced scorecard, it has great potential to translate corporate sustainability strategies into action and to integrate sustainability into the core management systems of the organization. Bennett and James (S. Schaltegger & Wagner, 2006b) define sustainability performance measurement and management practices as the "measurement and management of the interaction between business, society and the environment."

SBSCs can be developed by either sub-sumption of environmental and social aspects to the basic BSC perspectives and/or the introduction of an additional non-market perspective (Figge & Hahn, 2002) (Schaltegger, S. & Dyllick, 2002). Much research work has been carried out in the field of sustainability management by means of a BSC (Bieker et al., 2001) (Figge, F.; Hahn, T.; Schaltegger, S. & Wagner, 2001a) (Orssatto, R.; Zingales, F.; O'Rourke, 2001). But these concepts have primarily been developed for the conceptual framework of the so-called "Business Case" in which social and/or ecological issues are used for the mere creation of economic value. We would like to outline the main aspects of an SBSC in order to clarify the methodology when setting up a Balanced Scorecard. Recent activities of research developed a Sustainability Balanced Scorecard (SBSC) as a planning tool (Bieker et al., 2001). An SBSC in this sense helps to detect important strategic environmental and/or social objectives of the company, a single SBU or department and to illustrate causal relationships between such qualitative "soft facts" and the financial performance. Based on the strategic core aspects outlined by Kaplan/Norton, possible goals, sustainability indicators (as "lagging" or "leading indicators") as well as measures for the different perspectives are presented. The original four perspectives of the BSC are enlarged by a separate society perspective, which shows the demands of the non-economic stakeholders of a company (e.g. residents, state, public authorities, NGOs).

However, with a BSC respectively SBSC, one may not renounce the definition of sound sustainability strategies: If a company wants to establish an SBSC for the purpose of corporate sustainability, the setting-up of corporate environmental, social, and business strategies must be done beforehand. Within the conception framework of the "business case", the different goals of the learning, development, process, customer, or society perspective should help to support the achievement of the financial targets. Moreover, the SBSC is supposed to be a planning tool and not a management (Johnson, 1998) states that an SBSC is an essential context to bring together environmental issues and corporate strategic management goals regardless of the approach that would be followed for its development. SBSC has lately been considered an essential tool to design and achieve the key objectives of corporate sustainability management. It could also constitute a suitable context for recording necessary information in relation to corporate sustainability performance by combining financial and non-financial information (Länsiluoto & Järvenpää, 2010). (Epstein & Wisner, 2001) recognize that a well-organized SBSC can assist firms to implement an efficient sustainability strategy. The suitability of SBSC for preparing and designing corporate sustainability management strategies is mainly associated with its capability to recognize relations between long-term environmental and social goals and short-term financial benefits of firms (Möller & Schaltegger, 2005). SBSC is also considered a suitable means for disclosing corporate sustainability performance information (Länsiluoto & Järvenpää, 2008). (Radu, 2012) applies the SBSC to implement efficient strategies in which the economic, social and environmental aspects were incorporated into an integrated system for sustainable performance evaluation.

2.3.1 Background of the SBSC concept

The SBSC concept appeared in 2002 as the result of a two-year research project sponsored by the German Ministry for Science and Education. This research project ("Sustainability Balanced Scorecard") was done by scientists from the Institute for Economy and the Environment (St. Gallen) and the University of Lüneburg.

The result of the research was the method of integration earlier developed sustainability ideas into existent Balanced Scorecard systems.

- SBSC introduces two additional perspectives to the Balanced Scorecard method: Society and Environment.
- Different research suggested introducing only the “Society” perspective to the traditional Balanced Scorecard.

2.3.2 The Process of formulating Sustainability Balanced Scorecard

Based on our reasoning in the previous sections, the process of formulating an SBSC has to meet a number of basic requirements as follows:

(i) The process must lead to an integration of environmental and social management into business management.

(ii) An SBSC that exactly meets the specific characteristics and requirements of the strategy and the environmental and social aspects of a business unit must not be generic. The process therefore has to ensure that the SBSC formulated is business unit specific.

(iii) Environmental and social aspects of a business unit must be integrated according to their strategic relevance. This includes the question whether the introduction of an additional non-market perspective is necessary.

2.3.3 Problem to the implementation of sustainability balance scorecard

The majority of current proposed SBSC techniques provide a range of financial, environmental, and economic indicators that differ among techniques. The lack of standard instructions on how to integrate sustainability concerns into the BSC perspectives is the most significant failure and it explains the present inferior sustainability performance results. (Dias-Sardinha, Reijnders, & Antunes, 2002) point out that despite the fact that the current theoretical frameworks provide important ideas for developing an SBSC, a limited number of such frameworks have provided standard procedures to select sustainability indicators. The current SBSC body of literature also provides a small number of empirical findings on corporate sustainability performance that are mainly based on case study research and hypothetical examples (Graham Hubbard, 2009). The results of such techniques do not seem to be sufficiently accurate to measure corporate sustainability performance effectively because some

environmental and social indicators are based only on the perceptions of managers and staff and not on real measurements.

In conclusion, the Sustainability Balanced Scorecard is a tool for value-based sustainability management of organizational assessment on environment and social perspective. The sustainability balanced scorecard is also the management tool to evaluate the performance of organization or company's strategic plan by focusing on financial, customer, internal process, and learning and growth perspective. Moreover, this tool also focuses on sustainability perspective which is related to environment and social perspective. The SBSC allows organization and business to consider non-financial performance and outcome. By applying the SBSC theory in organization or business, it will help detect the environmental and social strategy of organization and business.

The Sustainability Balanced Scorecard (SBSC) is useful for evaluating performance of power development fund in Thailand because the power development fund in Thailand have to manage and operate the internal process of the performance of power development fund and need to focus on the performance of power development fund toward environmental and society. Therefore, SBSC is suitable to be used as a tool to evaluate internal and external process of power development fund in Thailand.

There has been international research using the SBSC as a methodology to evaluate performance of organization or company, for example, proposing a new integrated model based on sustainability balanced scorecard (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 this study is to propose model to evaluate the performance by using a combination of the MCDM methods and the SBSC approach to help authorities make an attempt to achieve a competitive advantage. Another research is on managing sustainability with the support of business intelligence: Integrating socio-environmental indicators and organizational context, the main contribution of the study is to propose conceptual model that seek to support the process of integration of socio- environmental indicators into organizational strategy for sustainability (Petrini & Pozzebon, 2009). Another research is on finding empirical

support for the benefits of Corporate Social Responsibility (CSR) to family-owned hotels by identifying paths through which CSR influences business. The Sustainability Balanced Scorecard (SBSC) concept is used to assess the perceived importance of relationships between CSR and business performances to support the goals of the case hotels (Kang, Chiang, Huangthanapan, & Downing, 2015). The severe situations of resources and environment pose undesirable conditions to thermal power enterprises for making profits. The SBSC concept is employed to determine the initial evaluation criteria for the performance of thermal power enterprises which covers many perspectives such as “economic,” “environmental,” “sustainable,” and “learning and growth”. Therefore, the initial criteria based on the SBSC can comprehensively measure and improve the sustainable performance of thermal power enterprises (Zhao & Li, 2015). They develop a framework for outsourcing decisions in reverse logistics by using graph theoretic approach. The ability of graph theoretic approach to consider interdependencies and maintain hierarchical relationship among attributes and sub-attributes makes it an attractive approach. The attributes and sub-attributes are selected by combining four traditional balanced scorecard perspectives i.e. stakeholder, internal business process, learning and growth, and finance with triple bottom line aspects of sustainability known as sustainable balanced scorecard (Agrawal, Singh, & Murtaza, 2016). A new SBSC is developed for scoring-framework using Global Reporting Initiative (GRI) indicators and scoring–benchmarking techniques to measure the corporate sustainability performance by drawing data from corporate sustainability reports. It also aims at contributing to the empirical body of literature by applying this framework to a sample of Greek firms (Nikolaou & Tsalis, 2013).

Those studies aim to create model to evaluate performance of organization and system by using SBSC as a tool. Similarly, this study uses SBSC as a tool to evaluate the performance of the operation and management of power development fund in Thailand.

2.4 Good Governance

UNESCAP (2009) explains that the concept of "governance" is not new. It is as old as human civilization. Simply put, "governance" means the process of decision-making and the process by which decisions are implemented (or not implemented).

Governance can be used in several contexts such as corporate governance, international governance, national governance, and local governance.

Since governance is the process of decision-making and the process by which decisions are implemented, an analysis of governance focuses on the formal and informal actors involved in decision-making and implementing the decisions made and the formal and informal structures that have been set in place to arrive at and implement the decision.

Good governance has eight major characteristics. It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views of minorities are taken into account, and the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society

Participation

Participation by both men and women is a key cornerstone of good governance. Participation could be either direct or through legitimate intermediate institutions or representatives. It is important to point out that representative democracy does not necessarily mean that the concerns of the most vulnerable in society would be taken into consideration in decision-making. Participation needs to be informed and organized. This means freedom of association and expression on the one hand and an organized civil society on the other hand.

Rule of law

Good governance requires fair legal frameworks that are enforced impartially. It also requires full protection of human rights, particularly those of minorities. Impartial enforcement of laws requires an independent judiciary and an impartial and incorruptible police force.

Transparency

Transparency means that decisions are taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. It also means that enough information is provided and that it is provided in easily understandable forms and media.

Responsiveness

Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe.

Consensus oriented

There are several actors and as many viewpoints in a given society. Good governance requires mediation of the different interests in society to reach a broad consensus in society on what is in the best interest of the whole community and how this can be achieved. It also requires a broad and long-term perspective on what is needed for sustainable human development and how to achieve the goals of such development. This can only result from an understanding of the historical, cultural, and social contexts of a given society or community.

Equity and inclusiveness

A society's well-being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires that all groups, but particularly the most vulnerable, have opportunities to improve or maintain their well-being.

Effectiveness and efficiency

Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources at their disposal. The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.

Accountability

Accountability is a key requirement of good governance. Not only government institutions but also the private sector and civil society organizations must be accountable to the public and to their institutional stakeholders. Who is accountable to whom varies depending on whether decisions or actions taken are internal or external to an organization or institution. In general, an organization or an institution is accountable to those who will be affected by its decisions or actions. Accountability cannot be enforced without transparency and the rule of law.

Five principles of good governance

Defining the principles of good governance is difficult and controversial. The United Nations Development Program (UNDP, 1997) enunciates a set of principles

that, with slight variations, appear in much of the literature. There is strong evidence that these UNDP – based principles have a claim to universal recognition. In grouping them under five broad themes, we recognize that these principles often overlap or are conflicting at some point,that they play out in practice according to the actual social context, that applying such principles is complex, and that they are not only about the results of power but how well it is exercised.

The UNDP Principles and related UNDP text on which they are based

1. Legitimacy and Voice

Participation – all men and women should have a voice in decision-making, either directly or through legitimate intermediate institutions that represent their intention. Such broad participation is built on freedom of association and speech, as well as capacities to participate constructively.

Consensus orientation – good governance mediates differing interests to reach a broad consensus on what is in the best interest of the group and, where possible, on policies and procedures.

2. Direction

Strategic vision – leaders and the public have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development. There is also an understanding of the historical, cultural, and social complexities on which that perspective is grounded.

3. Performance

Responsiveness – institutions and processes try to serve all stakeholders.

Effectiveness and efficiency – processes and institutions produce results that meet needs while making the best use of resources.

4. Accountability

Accountability – decision-makers in government, the private sector, and civil society organizations are accountable to the public, as well as to institutional stakeholders. This accountability differs depending on the organizations and whether the decision is internal or external.

Transparency – transparency is built on the free flow of information. Processes, institutions, and information are directly accessible to those concerned with them, and sufficient information is provided to understand and monitor them.

5. Fairness

Equity – all men and women have opportunities to improve or maintain their well-being.

Rule of Law – legal frameworks should be fair and enforced impartially, particularly the laws on human rights.

Good Governance needs to apply in the operation and management of power development fund. The operation and management of power development fund need to follow the law and regulation, the operation and management should manage with transparency, the operation and management of power development fund need to give opportunity for stakeholders to participate in the operation and management of power development fund. The power development fund should manage with accountability, effectiveness, and efficiency. ERC fund should operate and manage power development fund in designated area to serve and respond to all stakeholder affected by the operation of power plant.

2.5 POSDCORB

POSDCORB is an acronym created by Luther Gulick and Lyndall Urwick in their Papers on the Science of Administration (Gulick, 1937). Developed as a means to structure and analyze management activities, it sets a new paradigm in Public Administration. Based on the theories of Henri Fayol's 14 Principles of Management, Gulick and Lyndall Urwick dispute the prevailing thinking that there is a dichotomy between politics and administration. Instead, it is impossible to separate the two. It has been called the high noon of orthodoxy due to the assumption that it is the principles that are important and not where they are applied.

- Planning, that is working out in broad outline the things that need to be done and the methods for doing them to accomplish the purpose set for the enterprise;
- Organizing, that is the establishment of the formal structure of authority through which work subdivisions are arranged, defined, and co-ordinated for the defined objective;
- Staffing, that is the whole personnel function of bringing in and training the staff and maintaining favorable conditions of work;

- Directing, that is the continuous task of making decisions and embodying them in specific and general orders and instructions and serving as the leader of the enterprise;
- Co-Ordinating, that is the all-important duty of interrelating the various parts of the work;
- Reporting, that is keeping those to whom the executive is responsible informed as to what is going on including keeping himself and his subordinates informed through records, research, and inspection;
- Budgeting, with all that goes with budgeting in the form of planning, accounting, and control.

This research adapts the POSCORB to apply for Power Development Fund in Thailand management model as follows

- Planning; the operation and management of power development fund in each area should focus on planning and doing to accomplish the purpose of power development fund.
- Organizing; the power development fund should organize the structure of organization and should manage the responsibility structure of each section.
- Staffing; the employees or staff of power development fund should have job description for their own duties and those job description should be transparency. The job description must support and improve the efficiency of employees and staff of power development fund in each area.
- Coordinating; the person who sets up the policy for power development fund in each area should coordinate with employees or staff of power development. The coordinating will help improve efficiency of the operation and management of power development fund.
- Reporting; the power development fund should report the performance of power development fund to related person or related organization. Moreover, they should report to people or residents who live around power development fund.
- Budget; the budget that power development fund distribute to the community to formulate community project should be transparent and fair. The using of

budget that distributes to the community should be reported to every related sector, for example, people and other related organization.

This study focuses on the POSCORB theory because it relates to the operation and management of power development fund. As power development fund need to have the planning on the management and allocate the budget for each communities to formulate community project. Power development fund also need to organize the structure of type and category of power development fund related to the type of energy that generates electricity, type of category of power development fund divided by the amount of energy that each power plant can generate, staff in power development fund that need training and knowledge to improve efficiency and ability at work, the directing that ERC deploy to all of power development fund in each category, the coordinating of power development fund with the related organization, the reporting of the operation and management of power development fund to ERC, related organizations and stakeholders, the budgeting that ERC and power development fund allocate to communities to propose and formulate community projects.

2.6 The Power Development Fund

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 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. (Office of the Energy Regulatory Commission, 2016, pp. 1–2)

"Implementation pertaining to the Fund" will be regulated by the Energy Regulatory Commission (ERC) in compliance with the policy framework prescribed by the National Energy Policy Council (NEPC). The Office of the Energy Regulatory Commission (OERC) is responsible for the receipt, disbursement, keeping and management of the money of the Fund in conformity with the regulations set forth by

the ERC, by separating the Fund account from the OERC budget. The implementation pertaining to the Fund will be subject to inspection by the Office of the Auditor General of Thailand.

"Sources of the Fund" comprise the following: (1) contributions from electricity industry licensees in accordance with the announcements issued by the ERC under the policy framework of the NEPC; (2) fines collected from electricity industry licensees who violate or fail to comply with the ERC orders; (3) donated money or assets; and (4) interest or any benefit incurred from the money or assets of the Fund.

Presently, the ERC has issued an announcement pursuant to the policy framework of the NEPC, requiring electricity generation licensees to send contributions to the Fund, which can be divided into two cases, i.e. (1) during the plant construction, at a rate of 50,000 Baht/MW/year; and (2) during the plant commission, at a rate classified by fuel type used for power generation, ranging from 1-2 satangs/kilowatt-hour (kWh) (or satangs/unit), as shown below.

Table 2.2 Contribution Rates to the Power Development Fund imposed on power generation licensees during commission (Office of the Energy Regulatory Commission, 2016)

Fuel	Satang*/kWh	Fuel	Satang/kWh
Coal, Lignite	2.00	Wind, Solar	1.00
Hydropower	2.00	Biogas, Biomass	1.00
Fuel oil, Diesel	1.50	Residues and wastes	1.00
Natural gas	1.00	Municipal Solid Waste	1.00
		Other Renewable Energy	1.00

Note: *100 Satangs = 1 Thai Baht = approx. 0.032 USD

"**Deployment of the Fund**" will be in compliance with the objectives specified under Section 97 of the Energy Industry Act (2007) and the regulations prescribed by the ERC under the policy framework of the NEPC. The accounts of the Fund expenditures will be distinctly separated by activity, as follows:

- to compensate and subsidize for electricity industry licensees who provide services for underprivileged power consumers or to enhance extensive electrification to facilitate decentralization of development to provincial areas;
- to compensate power consumers who have to pay the tariffs at a higher rate resulting from unjust power generation;
- to develop or rehabilitate localities affected by power plant operation;
- to promote the use of renewable energy and technologies that have minimal impact on the environment;
- to increase knowledge, awareness and participation of local communities; and
- to pay for the administrative cost of the Fund.

Progress of the Fund Implementation

So far, the ERC has issued 12 regulations and announcements in relation to the Fund implementation, as follows:

1. The ERC Regulation on the Power Development Fund, B.E. 2553 (2010), stipulating an overview of practice concerning the receipt, disbursement, keeping and funding management of the Fund. This regulation was published in the Government Gazette on 20 December 2010 and has taken effect since 21 December 2010.

2. The ERC Announcement on Sending of Contributions to the Power Development Fund Imposed on Electricity Generation Licensees, B.E. 2553 (2010). This announcement was published in the Government Gazette on 20 December 2010 and has taken effect since 21 December 2010. As a result, the existing electricity generation licensees are required to send contributions to the Fund based on the amount of their energy generation as from January 2011 onwards.

3. The ERC Regulation on the Power Development Fund for Development or Rehabilitation of Localities Affected by Power Plant Operation, B.E. 2553 (2010), concerning the management of the Fund in a designated area. This regulation was published in the Government Gazette on 8 February 2011 and has taken effect since 9 February 2011.

4. The ERC Announcement on the Selection of a Community Development Committee, B.E. 2554 (2011), published on 29 April 2011 and effective since 30 April 2011.

5. The ERC Announcement on the Selection of a Tambon (Sub-district) Development Committee, B.E. 2554 (2011), published on 29 April 2011 and effective since 30 April 2011.

6. The ERC Announcement on Procedures and Methods of the Selection of a Community Development Committee and a Tambon Development Committee, B.E. 2554 (2011), published on 11 August 2011 and effective since 12 August 2011.

7. The ERC Announcement on the Administrative Cost for Power Development Fund Implementation in a Designated Area, B.E. 2555 (2012), published on 31 January 2012 and effective since 1 February 2012.

8. The ERC Announcement on the Criteria for Money Allocation and Consideration of Community Projects Financed by the Power Development Fund under Article 97(3), B.E. 2555 (2012), published on 5 March 2012 and effective since 6 March 2012.

9. The ERC Regulation on the Inventory of the Power Development Fund for Development or Rehabilitation of Localities Affected by Power Plant Operation, B.E. 2555 (2012), published in the Government Gazette on 19 March 2012 and effective since 20 March 2012.

10. The ERC Announcement on the Administrative Cost for Power Development Fund Implementation in a Designated Area, No. 2, B.E. 2555 (2012), published on 30 March 2012, with immediate effect.

11. The ERC Announcement on the Criteria for Money Allocation and Consideration of Community Projects Financed by the Power Development Fund under Article 97(3), No. 2, B.E. 2555 (2012), published on 30 March 2012, with immediate effect.

12. The ERC Regulation on the Receipt of Money and Assets Donated to the Power Development Fund for Development or Rehabilitation of Localities Affected by Power Plant Operation, B.E. 2555 (2012), published on 16 July 2012 and effective since 17 July 2012.

According to the ERC Regulation on the Power Development Fund for Development or Rehabilitation of Localities Affected by Power Plant Operation, B.E.

2553 (2010), effective since 9 February 2011, it is required that Power Development Fund committees in designated areas be established to manage the Fund in each area. The committee components will differ based on the category of the Fund management, as can be summarized in the following.

Table 2.3 The Fund Category (Office of the Energy Regulatory Commission, 2016)

Fund Category	**Category A**	**Category B**	**Category C**
Allocated Money/Year	More than 50 M Baht	More than 1 M Baht, but not exceeding 50 M Baht	Less than 1 M Baht
Fund Management	CDC: 15-35 members TDC: 7 members	CDC: 15-35 members	Municipality/Tambon Administration Organization (TAO) representatives: 3 members
Office Term	- CDC: 4 years, and not more than 2 consecutive terms. At the initial term, after two years' time, half of the committeemembers shall be discharged by drawing lots. - TDC: 2 years, and not more than 2 consecutive terms.	CDC: 4 years, and not more than 2 consecutive terms. At the initial term, after two years' time, half of the committee members shall be discharged by drawing lots.	Not specified

CDC means a Community Development Committee, comprising: representatives of the general public sector, the number of which must be no less than two thirds; representatives of the government sector; and qualified persons, the number of which is not more than one third and to be appointed by the ERC.

TDC means a Tambon (Sub-district) Development Committee, comprising: representatives of the general public sector, the number of which must be no less than two thirds (one from each village or community); and representatives of other sectors, the number of which is not more than one third and to be appointed by the CDC.

Management Categories of Power Development Funds in Designated Areas

In managing Power Development Funds in designated areas, the components and the authority and duties of Power Development Fund committees will be based on the Fund categories, as briefed in the following:

Table 2.4 Management Categories of Power Development Funds in Designated Areas (Office of the Energy Regulatory Commission, 2016)

Fund Committee	Committee Components
Community Development Committee (CDC)	1. CDC members representing the general public sector: no less than two thirds. 2. CDC members representing the government sector, and qualified persons: no more than one third, whereby: 2.1 Government sector representatives, comprising a representative selected by a concerned Provincial Governor, representatives of the Ministry of Energy (max. 2 persons), and a representative of the OERC. 2.2 Experts/Advisors: max. 3 persons. In this regard, the ERC will consider and appoint a Chairman, no more than two Vice-Chairpersons and other Committee Members. The OERC representative will be a Committee Member & Secretary, and a representative of

Fund Committee	Committee Components
	the power plant in the designated area will be Assistant Secretary.
Tambon Development Committee (TDC)	1. TDC members representing the general public sector: the number will be equal to the number of villages in a given Tambon and will be no less than two thirds of the total TDC members. 2. Other TDC members, e.g. the sub-district headman; village headmen; representatives of academic institutions, community agencies, community networks, youth councils, religious places and mass media: the number will be no more than one third of the total TDC members. The TDC will organize a meeting to elect its Chairman, Vice-Chairman and Secretary from the TDC members and present the TDC name list, as a whole, to the CDC Chairman for appointment.
Fund Committee Community Development Committee (CDC)	Authority and Duties in Brief 1. Determine areas of eligible Fund beneficiaries. 2. Formulate and propose a strategic plan, an annual work plan and a money allocation plan. 3. Encourage and support a survey on power plant operation impact to help formulate proposals to improve a designated area. 4. Encourage a survey on the needs of local residents and power plant operation impact to serve as input for the formulation of community projects. 5. Consider and approve community projects, including monitoring the execution of community project contracts/agreements, and disburse money for the project implementation.

Fund Committee	Committee Components
	6. Supervise the account recording and report the status of the Power Development Fund in a designated area to the OERC, quarterly and annually. 7. Follow up, examine and evaluate the community project performance and report to the OERC. 8. Engage and appoint an account auditor, including engaging individuals to assist with the work execution, as deemed appropriate. 9. Publicize and disseminate information about the Power Development Fund in a designated area and the achievements to the general public. 10. Promote and support participation of various sectors in the designated area in the Fund operation, including cooperation networking with CDCs in other designated areas. 11. Appoint a sub-committee to consider or carry out any task as assigned by the CDC. 12. Supervise and carry out the operation in line with the ERC's directives. 13. Propose relevant additional regulations to the ERC for consideration, as necessary. 14. Perform any other task as assigned by the ERC or the OERC in order to achieve the objectives of the management of Fund monies for a designated area.
Tambon Development Committee (TDC)	1. Survey the needs of local residents and power plant operation impact to serve as input for the formulation of community projects. 2. Formulate a master plan for community or Tambon development for sustainable development.

Fund Committee	Committee Components
	3. Promote and support the formulation of community projects, by organizing public forums at Tambon or village level. 4. Follow up and evaluate the community project performance and report to the CDC. 5. Encourage knowledge provision about the Power Development Fund to local residents in designated areas, including publicizing and disseminating information and implementation outcome of the Funds in designated areas. 6. Receive petitions and address the problems in the first instance and report the matters to the CDC. 7. Perform any other task as assigned by the CDC in order to achieve the objectives of the Fund management of fund monies for a designate area.
Municipality/Tambon Administration Organization (TAO) Representatives	Develop community projects via organizing public forums at Tambon level and prepare the money disbursement plan of each project, in compliance with the annual work plan framework, approved by the ERC. In this connection, beneficiaries of funding allocation must be government agencies

Recruitment of Power Development Fund Committees in Designated Areas

In order to recruit the Power Development Fund committee in a designated area, the OERC will undertake the following: (Office of the Energy Regulatory Commission, 2016, pp. 1–2)

1. Issue an OERC announcement, by and with the ERC's consent, determining a designated area (a list of villages surrounding a given power plant), the Fund management category and the number of CDC members.

2. Carry out public relations activities to provide local residents and the general public with information about the Power Development Fund and the recruitment of CDCs and TDCs, via appropriate channels, i.e. the OERC website ("OERC website,") announcement posting, leaflets, posters, banners, radio spots and local broadcasting towers in designated areas, printed matters, TV spots and the mass media in the central and provincial areas, as deemed appropriate.

3. Liaise with government agencies for their cooperation in carrying out the recruitment of Power Development Fund committee members in a designated area, as follows:

For the selection of Community Development Committee (CDC) members, the OERC has liaised, in writing, with relevant agencies to undertake the following:

(1) **Recruitment of the people's sector representatives** – the District Headman, or an equivalent government officer, in the designated area is requested to encourage village councils to organize a public forum at village level to recruit one representative from each village, and then the District Headman, or an equivalent government officer, shall hold a meeting among the village representatives in that Tambon (sub-district) to select among themselves Tambon representatives, at the number prescribed by the ERC;

(2) **Recruitment of the government sector representatives** – the Provincial Governor, supervising the area where a concerned power plant is located, and the Permanent Secretary of Energy are requested to consider and select representatives to be CDC members representing the government sector, at the number prescribed by the ERC;

(3) **Recruitment of qualified person/expert representatives** – the OERC Regional Office responsible for the area where the power plant is located will coordinate and invite the selected CDC members representing the people's and government sectors to a meeting in order to propose names of qualified persons/experts and make a selection thereof to be CDC members, at the number prescribed by the ERC.

When the selection of CDC members representing all concerned sectors in each area has completed, the OERC Regional Office monitoring the area where the power plant is located will present the outcome to the Secretary General of the OERC to further present the name list of selected CDC members, as a whole, to the ERC for consideration and appointment of a Chairman, a Vice-Chairman and CDC Members.

For the selection of Tambon Development Committee (TDC) members, at the initial term:

(1) **Recruitment of the people's sector representatives** – the District Headman, or an equivalent government officer, in the designated area is requested to encourage village councils to hold a public forum at village level to select one representative from each village; this will be conducted on the same occasion as that of the recruitment of CDC members representing the people's sector at the initial term;

(2) **Recruitment of other TDC members** – the District Headman, or an equivalent government officer, in the designated area is requested to encourage village councils to make an announcement inviting applications to be TDC members representing other sectors, in compliance with the method prescribed by the OERC, and present the name list of applicants together with qualification testimonials to the District Headman, or an equivalent government officer, who will organize a meeting of recruited village representatives of the people's sector in order to select TDC members representing other sectors, at the number prescribed by the ERC. In the case where TDC members representing other sectors cannot be recruited, the recruited village representatives of the people's sector can, instead, propose the names of TDC members representing other sectors.

When the name list of TDC members representing all concerned sectors is obtained, the District Headman, or an equivalent government officer, in the designated area will notify, in writing, the name list of recruited TDC members, together with qualification testimonials, to the OERC so that a meeting would be organized to elect a Chairman, a Vice-Chairman and a Secretary, and then the name list of recruited TDC members, as a whole, will be presented to the CDC for consideration and appointment of the TDC.

With regard to the recruitment of municipality or Tambon Administration Organization (TAO) representatives to manage the money of local Power Development Funds, Category C, the OERC will liaise, in writing, with the Provincial Governor in a designated area to consider and appoint no more than three (3) municipality or TAO representatives in the designated area to manage the implementation under the Category C Funds.

In this connection, district headmen in designated areas will be invited by the OERC to participate in a seminar to get a detailed explanation on the objectives and procedures of the mentioned recruitment. Public relations campaigns at Tambon level will also be arranged to explain the implementation to village councils in order to create their understanding. After that, the village councils commenced disseminating the information at local level for a period of no less than 15 days prior to holding their respective village or community-level forums to recruit representatives of the people's sector in their respective CDCs and TDCs.

Management of the Power Development Fund in a Designated Area. The ERC has set forth the budget framework for the use of money of the Power Development Fund in a designated area, which can be divided into two major parts:

Annual Administrative Cost of the CDC – at a maximum rate of 15% of the allocated budget in each year, based on the amount of allocated money, as shown in the table below.

Table 2.5 : Administrative Cost (Office of the Energy Regulatory Commission, 2016)

Allocated Budget	**Rate of Administrative Cost (%)**	**Max. Accumulated Administrative Cost of Each Scale (M Baht)**
Less than 5 M Baht	15.0	0.750
> 5 – 10 M Baht	12.5	1.375
> 10 – 50 M Baht	10.0	5.375
> 50 – 100 M Baht	7.5	9.125
> 100 – 150 M Baht	5.0	11.625
> 150 M Baht	2.5	> 11.625

In this regard, the administrative cost of the CDC will comply with the ERC Announcement on the Administrative Cost for Power Development Fund Implementation in a Designated Area, B.E. 2555 (2012), including its consequential amendment.

Community Project Implementation Cost – at a rate of no less than 85% of the allocated budget in each year. The concerned CDC or TDC (in the case of Fund Category A) must organize a public forum at village or Tambon level to survey the needs of the people and allow those who wish to propose a project to prepare a paper on the proposed community project, pursuant to the format prescribed by the OERC. The application for funding from the Power Development Fund in a designated area will have to comply with the criteria framework set forth by the ERC, contributing to the following 11 aspects:

(1) enhancement of quality of life, health and well-being;

(2) livelihood development;

(3) agricultural development;

(4) community economic development;

(5) quality of life improvement;

(6) development of the local education, religion, culture and tradition;

(7) community development;

(8) environmental conservation and rehabilitation;

(9) expenditures on an emergency and a relief for those in trouble;

(10) potential development of personnel dealing with the Power Development Fund;

(11) any other project and program that contributes to locality development in designated areas, as approved by the ERC

When the presentation of community projects is completed, the concerned TDC (in the case of Fund Category A) will screen the proposed projects for submission to the

CDC for approval, in compliance with the criteria set forth by the ERC, by prioritizing the approved projects and incorporating them into the annual work plan. In addition, the CDC must notify, in writing, the outcome of community project consideration to those who presented the projects within 30 days as from the date of completion of community project consideration and must publicize the outcome to the general public in the designated area.

Public Participation in the Power Development Fund Operation

The OERC wishes to publicize the Power Development Fund operation and urges people residing in surrounding areas of power plants as well as interested persons to keep abreast of detailed information about ERC regulations and announcements, the determination of designated areas under individual local Power Development Funds and progress of the Fund performance via the OERC website. Local residents in designated areas can take part in managing the Fund operation via various channels as follows:

1. Participation in a public forum at village or community level to select a village representative to be a member of the Community Development Committee (CDC).

2. Participation in a public forum at village level that will be organized by the CDC or TDC in each designated area in order to propose community projects to be financed by the local Power Development Fund to ensure that the projects reflect actual needs of local residents and contribute to the development of your community.

3. Participation in the follow-up, inspection and evaluation of the performance of the local Fund committees as well as the spending of money from the local Funds to ensure that the implementation is in compliance with the regulations set forth by the ERC so as to create transparency, fairness and accountability.

Power development fund has been decentralized and budget has been allocated to residents for community project proposals in order to develop the social, economic, and environmental sectors. However, nowadays, the operation and management of power development fund in Thailand have faced with some problems. For example, the budget that distributes to power development fund in each category is not appropriate

because people or residents living near or receiving impacts from the power plant do not get any benefit from the fund. Therefore, this study will set up the conceptual framework and indicators to evaluate and assess the Power Development Fund in Thailand. The reason that the power development fund needs evaluation and assessment is because, with recent problems of the operation and management of power development fund, the result from evaluation and assessment will act as a tool for power development fund to improve on its operation and management. It will also improve on the performance of power development fund toward all stakeholders. This study will use Sustainability Balanced Scorecard theory (SBSC) to evaluate and assess the operation and management of power development fund in Thailand. The SBSC was developed from the Balanced Scorecard theory focusing more on social and environmental perspective. With SBSC theory, it will help evaluate the performance of organization or any system which focus on the external process such as environmental and social perspectives which create sustainability in the organization or any system. Recently, there have been research works that apply SBSC theory to create framework to measure the performance of environmental project through the corporate sustainability management of organization and system. For example, the SBSC theory is used to be conceptual framework to improve the quality of sustainability management goal especially environmental issue (Johnson, 1998)

Recently, there have been research works on power development fund in Thailand that have mainly focused on the specific power development fund. For example; a case study of antecedents of Khanom Power Plant Community Acceptance (Jianphan, 2007), a case study of Nam Phong Power Plant Energy Tax Fund (NPP-ETF)(Trikritwatanakul, 2011), the study of people's participation in clean energy fund activities for community development surrounding Kaeng Khoi Power Plant II (Amronprom, 2013), the study of EGAT and Life Quality Development of Communities in Mae Moh Power Plant, Mae Moh district, Lampang province (Kunupatum, 2014). Moreover, there is also a report by Suan Dusit University on the following and supporting of the evaluation of the performance of power development fund in category A and B.(University, 2014) The report uses Balanced Scorecard theory to evaluate performance of power development fund. For this study, the researcher has studied and recommended the guideline for appropriate management of Power

Development Fund in the context of Thailand by using Sustainability Balanced Scorecard as the evaluation tools to evaluate the performance of power development fund in selected category A and B.

CHAPTER 3

RESEARCH METHODOLOGY

In this chapter, a conceptual framework based on the Sustainability Balanced Scorecard (SBSC) is applied to evaluate the operation and management of power development fund in Thailand. The SBSC concept is able to evaluate all aspects under the operation and management of power development fund in Thailand consisting of six perspectives namely the overall efficiency of operation and management, management process, stakeholders, learning and development, environmental, and social perspectives as shown in Figure 3.1.

3.1 Conceptual Framework

The conceptual Framework based on the Sustainability Balanced Scorecard on the operation and management of power development fund consists of six perspectives

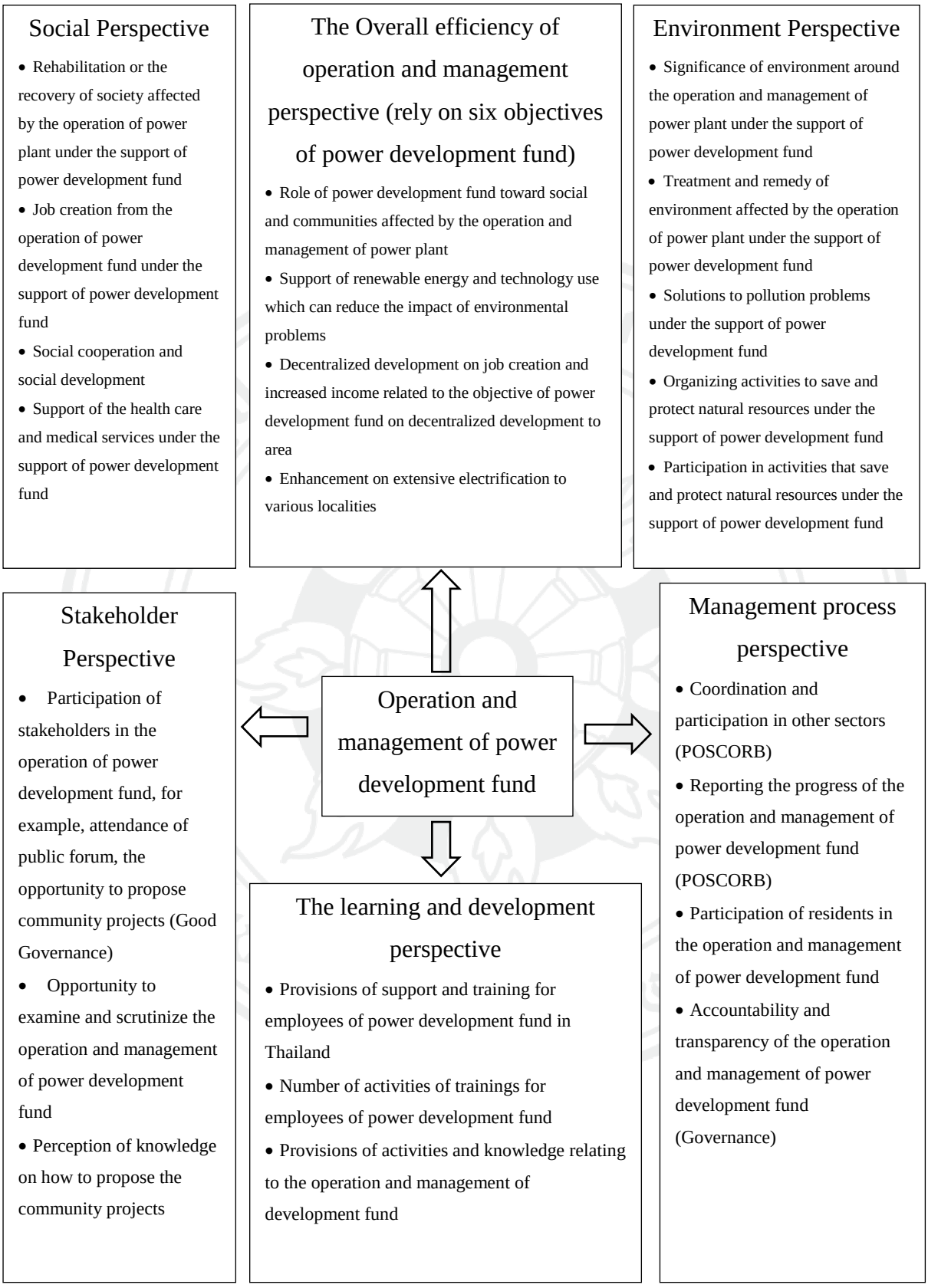

Figure 3.1 The Conceptual Framework

3.1.1 Overall Efficiency of Operation and Management Perspective

The overall efficiency of operation and management means the efficiency and benefits which occur from the management of power development fund related to its objectives namely; to be used as capital to enhance extensive electrification to various localities, decentralize development to provincial areas; develop or rehabilitate localities affected by power plant operation; 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. (Office of the Energy Regulatory Commission, 2016, pp. 1–2)

The overall efficiency of operation perspective was focused on the following:

1. The role of power development fund toward social and communities affected by the operation and management of power plant

2. The support of renewable energy and technology use which can reduce the impact of environmental problems. (Paul Komor, 2004) describes renewable energy as a key to the future of humankind. Wind power, solar (photovoltaic) energy, geothermal power, and other forms of renewable energy can help solve our most pressing environmental problems, including global climate change.

3. The decentralized development on job creation and increased income related to the objective of power development fund on decentralized development to area. (World Bank, 2013)"Jobs are the cornerstone of economic and social development".

4. The enhancement on extensive electrification to various localities which assist the development of localities related to the objectives of power development fund.(Khandker, Samad, Ali, & Barnes, 2014) mention that the Rural Electrification Corporation was put in charge of accelerating the pace of rural electrification and encouraging the use of electricity for irrigation

3.1.2 The Management Process Perspective

The management process perspective means the performance on the operation and management of power development fund by focusing on coordination of power development with other related sectors, reporting performance of the operation and management of power development fund, the opportunity that power development fund provides for residents to participate in the operation and management of power development fund, accountability and transparency on the operation and management of power development fund.

The management process perspective is focused on the following:

1. The coordination with the participation in other sectors on operation and management of power development fund. (L.J, 2005) describes coordination as balancing and maintaining the team by ensuring a suitable division of work and seeing that tasks are performed in harmony.

2. The reporting of progress of operation and management of the power development fund in Thailand. (Chima Sebastine Ugwulashi, 2012) describes that reporting creates effective, realistic, good and unbiased, communication that feedback for organizational growth, in other words, instilling trust and confidence among members.

3. The participation of residents in the operation and management of power development fund. (Kaufmann, Kraay, & Mastruzzi, 2007a) describe that participation is a degree of involvement of the citizen of a country in the election of their political leader but the participation in terms of power development fund means the involvement of residents to participate in the operation and management of power development fund.

4. The accountability of power development fund toward the operation and management which provide benefit to all stakeholders, for example, the responsibility of power development fund to manage and operate the allocation of budget to stakeholders. (Keping, 2018) describes that accountability refers to the duties related to a certain position or institution and its corresponding obligations. The more accountability the public, especially public officers and administrative bodies have, the higher the level of good governance will be.

5. The transparency on the operation and management of the power development fund which provide benefits to all stakeholders, for example, the role of power

development fund in the operation and management which all stakeholders can examine and scrutinize. (Keping, 2018) describes that all citizens are entitled to the information on State policies related to their own interests, including legislative activities, policy-making, legal provisions policy enforcement, administrative budget, public expenditure, and other relevant political information. Transparency requires that the aforementioned political information be duly communicated to citizens through various media vehicles so that they can participate in public policy-making and supervise the process of public administration in an effective manner. (UNDP, 1997) describes that transparency is built on the free flow of information. Processes, institutions, and information are directly accessible to those concerned with them, and sufficient information is provided to understand and monitor them.

3.1.3 Stakeholder Perspective

Stakeholders mean people who are involved and receive both benefit and impact from the operation and management of power plant and power development fund, for example; ERC, officers at power development fund department, the director of the Office of the Energy Regulatory Commission Regional Office (OERC), the manager of power development fund in designated area, employees who work for power development fund in designated area, the owner of power plant, the local administrative organization, the sub-district headmen, the village headmen, and residents who live near power plant, including residents who write and propose community projects.

The stakeholder perspective is focused on the following:

1. The participation opportunity toward the operation of power development fund, for example; attending public forums, opportunity to propose community projects. (Kaufmann, Kraay, & Mastruzzi, 2007b) describe that participation is a degree of involvement of the citizen of a country in the election of their political leader. But the participation in terms of power development fund means the involvement of residents to vote and propose community projects. (UNDP, 1997) describes that participation is where all men and women should have a voice in decision-making, either directly or through legitimate intermediate institutions that represent their intention. Participation

is built on freedom of association and speech, as well as capacities to participate constructively

2. The opportunity to examine and scrutinize the operation and management of power development fund, for example, scrutinizing the budget allocated to formulate community projects. (Transparency International Slovakia and Slovak Governance Institute, n.d.) mentions that free access to public information is one of the essential features of democracy and human rights, and its implementation impacts citizens‟ opinions of national and local government and politics. It establishes an underpinning for a number of other human rights, such as freedom of expression. It is also linked to other transparency mechanisms, e.g. in public procurement and recruitment policy as it enables citizens to scrutinize freely how national and local politicians exercise their power, how they use public funds, and how they fill top positions in the public administration

3. The perception of knowledge on how to propose community projects. (Rock, 1985) mentions that knowledge concerning the object, scene, or event in a conscious propositional form generally does not affect perception. By and large, perception is autonomous with respect to thought. That is because perception is stimulus bound and is based on mental contents, lawful principles, and rules that are unconscious and in a form very different from such consciously represented propositional knowledge

3.1.4 Learning and Development Perspective

Learning and Development means the support of knowledge and innovation such as the technology systems which apply to power development fund to improve the efficiency of the operation and management of power development fund in Thailand, for example, any training programs or activities that are provided to employees of power development fund in Thailand, the innovation for tracking the use of the budget that ERC and power development fund have allocated to residents to formulate community projects.

Learning and Development perspective was focused on the following:

1. Providing knowledge on support and training for employees of power development fund in Thailand. (Bandura, 1997) describes that training can be used to

enhance self-efficacy levels among employees.The number of activities of training for employees of power development fund in Thailand. (Ezeani Nneka Salome and Oladele Rotimi, 2013) mention that the importance of training and development is more obvious given the growing complexity of the work environment, the rapid change in organizations, and advancement in technology.

2. Providing the activities and knowledge relating to learning and development perspective of power development fund in Thailand, for example, the knowledge on the regulations of power development fund, the procurement regulation related to the operation and management of power development fund. (Ezeani Nneka Salome and Oladele Rotimi, 2013) mention that training and development assist the organizational members to possess the knowledge and skills they need to perform their job effectively, take new responsibilities and adapt to ever changing conditions. (Sousa, 2014) mentions that the perception of the employees are the main boundary and the main framework to select the impacts on the following: human resources practices, work organization, organizational structure, technology, product development, market, process, external relations, employee participation, knowledge management, and management practices.

3.1.5 Environmental Perspective

The environmental perspective means environment in the areas around the power plant affected by the operation of power plant, for example, air pollution, noise pollution, water pollution. The environmental perspective focuses on the rehabilitation on environment by solving the environment problems under the support of power development fund through the proposals of community projects by residents or stakeholders.

Environmental Perspective is focused on the following:

1. The significance of environment around the operation and management of power plant under the support of power development fund through community projects by residents or stakeholders (Wallis, Graymore, & Richards, 2011) mention that environmental indicators are considered the most important for assessing regional sustainability

2. The treatment and remedy of environment affected by the operation of power plant under the support of power development fund through community projects by residents or stakeholders.

3. The solutions to problems of the pollution under the support of power development fund through community projects by residents or stakeholders.

4. Organizing activities to save and protect natural resources under the support of power development fund through community projects by residents or stakeholders. (Nihal Baloglu Ugurlu and Elif Aladag, n.d.) mention that human activities are having an increasing impact on the integrity of ecosystems that provide essential resources and services for human well-being and economic activities

5. Participation in activities that save and protect natural resources under the support of power development fund through the proposals of community projects by residents or stakeholders.(Kaufmann et al., 2007b) describe that participation is a degree of involvement of the citizens of a country in the election of their political leader. But the participation in terms of power development fund means the involvement of residents to vote for and propose community projects.

3.1.6 Social Perspective

Social perspective means social impact from the operation of power plant, for example, the support and improvement of quality of life of residents, the treatment and remedy of the residents and societies affected by the operation of power plant, the job creation for people in the area near the power plant, the development of health care service provided to people affected by the operation of power plant.

Social perspective is focused on the following:

1. The rehabilitation or the recovery of society impacted from the operation of power plant under the support of power development fund through the proposals of community projects by residents or stakeholders, for example, create occupations, create income for society and recovery of society. (WHO (World Health Organization), 2011) defines rehabilitation as “a set of measures that assist individuals who experience, or are likely to experience, disability to achieve and maintain optimal functioning in interaction with their environments”. Rehabilitation involves identification of a

person's problems and needs, relating the problems to relevant factors of the person and the environment.

2. The job creation from the operation of power development fund under the support of power development fund through community projects by residents or stakeholders. (Meyer, 2014) describes that job creation and sustainable jobs are the result of economic development. While jobs are the foundation of any economy, the lack of jobs leads to poverty, crime, and social instability. (World Bank, 2013) describes that "Jobs are the cornerstone of economic and social development and the creation of jobs leads to development".

3. The social cooperation and social development, for example, opportunity provided for residents in the area to have common activities, for example, the New Year's day, Father's day, Mother's day, and Children's day etc. under the support of power development fund through community projects by residents or stakeholders. (Gimenez, Martín-Oro, & Sanaú, 2018) mention that social development defined in a multidimensional perspective encompassing health, economy, education and electoral participation—has a significant effect on academic achievement.

4. A support on the health care and medical service under the support of power development fund through community projects by residents or stakeholders. (Henry, Houston, & Mooney, 2004) believe that health care system is a social institution built on the cultural stance of the population it serves. It follows that cultural values should provide the value base for health services.

3.2 Data Collection Method and Tools

This study uses three different data collection methods following the concept of triangulation of qualitative data resources which include the following:

1. Secondary data is collected from books, journals, articles, thesis, reports, and any related documents. Those secondary data must relate to the operation and management of power development fund in Thailand. This process is very important to receive the background knowledge about the operation and management of power

development fund in Thailand and will be helpful for the gathering of data from the following process which support information from interviews and discussion

2. The information and data from interviews with key informants, for example, Energy Regulatory Commission, Power Development Fund Department, the employees of power development fund department, the OERC regional office managers, the managers of power development fund in category A,B, the employees who work for power development fund in category A,B, the sub- district headmen and village headmen and residents who live in the areas and receive either impact or benefit from power plant and power development fund by attending public forums to vote for community projects and also have opportunity to write and propose community projects. Data is collected by face-to-face interview.

The interview model has been in accordance with the conceptual framework which is related to the Sustainability Balanced Scorecard theory (SBSC) as shown in figure 3.1. The model includes:

2.1 The overall efficiency of operation perspective

2.2 The management process perspective

2.3 The stakeholder perspective

2.4 The learning and development perspective

2.5 The environmental perspective

2.6 The social perspective

3. Prepare questions for interviews with key informants under the SBSC theory

4. Content validity process 'Index of Item-Objective Congruence (IOC)' on the questions that will apply to interviews with key informants

5. The observation of the existence of community projects around the power development fund in designated area is very important for data collection method because it will help the researcher to see and understand community projects in the process of formulating and already formulated in areas. It will also help evaluate the performance of power development fund toward the allocation of budget for residents to formulate community projects. The researcher has the opportunity to observe the

existence of community projects. The purpose of observation of the existing community projects is because the researcher wants to confirm that the existing community projects is related to the objectives of setting up the power development fund.

The Quality of Qualitative Tools

Content validity is the most important validity as it is used to measure between the test content and objectives or curriculum. In constructing a test, it is necessary to select an item of which content is related to what to evaluate and is apart from the behavioral content. (Rovinelli & Hambleton, 1977) present the method to find the content validity, called 'Index of Item-Objective Congruence (IOC)' which has the following criteria:

Evaluation criteria:

- Scoring +1 = certain that the test is congruent with the objectives or content.
- Scoring 0 = uncertain that the test is congruent with the objectives or content.
- Scoring - 1 = certain that the test is NOT congruent with the objectives or content.

The value of IOC can be calculated from the following equation:

IOC = $\Sigma R/N$

ΣR = Sum of scores checked by at least three specialists

N = Number of specialists

If the value of IOC of each questions is higher than 0.5, the test is acceptable due to its congruence between the items and objectives or content. But if it is lower than 0.5, the test is unacceptable because of the lack of congruence.

The IOC results of this study are in the range of 0.60 – 1.00 (45 questions). It indicates that the questions are logically consistent and cover comprehensively all objectives of the study

3.3 Key informants

In this study, a purposive sampling is applied to select key informants.

3.3.1 Energy Regulatory Commission who has a role and is responsible for operating and managing the power development fund department and the power development fund in each designated area.

3.3.2 The director of power development fund management department. In this study, the researcher collects data by interviewing the director of power development fund department who is the head of department responsible for the operation and management of the power development fund in each designated area.

3.3.3 The employees of power development fund department. In this study, the researcher collects data by interviewing four employees of power development fund department who were experts in each sector of power development fund department namely; the expert in strategic planning of power development fund, the expert in the supporting of renewable energy and the participation, the expert in evaluation of the performance of power development fund, and the expert in the budgeting and procurement.

3.3.4 The director of the office of the Energy Regulatory Commission Regional office (OERC) who is responsible for managing the power development fund in designated area with six people in different locations according to power development funds studied in the category A and B.

3.3.5 Six managers of power development fund in the category A and B in six locations of power development fund A and B.

3.3.6 The employees who work for power development fund in the category A and B. About two employees are interviewed in each power development fund in the category A, B.

3.3.7 The sub-district headmen and village headmen who are representatives of residents in the areas receiving any impact and problems from power plant and receive benefit from the operation and management of power development fund. The sub-district headmen and village headmen are the leaders of communities who know about the situation and any problems which occur in the communities from the operation of power plant and also the representatives of communities to participate in the operation

and management of power development fund and might also be selected to be representatives of Community Development Committee (CDC) and Tambon Development Committee (TDC).

3.3.8 Residents in communities who live in the areas that receive any impact and problems from power plant and receive benefit from the operation and management of power development fund. Residents are a group of people who attend public forums to vote for community projects and also have opportunity to write and propose community projects with 48 people in six designated areas. The residents interviewed are divided into two groups namely a group of residents who propose community projects and get approval by power development fund and a group of residents who propose community project but do not get approval by power development fund. The reason why the researcher selects these types of residents is because the researcher wants to know their experience in writing and proposing the community projects which get approval and do not get approval.

The following table consists of the key informants, role and responsibility of key informants, and the number of key informants.

Table 3.1 Details and Number of key informants

Key informants	**Roles and Responsibility**	**Number of key informants**
The Energy Regulatory Committee	Manage and set policy framework and regulation of power development fund in Thailand with the authority to approve the allocation of budget and manage budget, nominate the CDC and TDC representatives, and manage other related work of power development fund under the purpose of power development fund.	1
The director of power development fund	Manage the overall operation and management of power development	5

Key informants	Roles and Responsibility	Number of key informants
management department and the officer of power development fund department who are in the position as specialist in each section of power development fund department	fund in Thailand and the power development management department specialized in strategic planning, expert in the support of renewable energy and the participation, expert in the evaluation of the performance of power development fund, and expert in the budgeting and procurement of power development fund	
The director of the OERC regional office	In charge of the operation and management of power development fund in each designated region.	6
The manager and employee of power development fund in six areas of the fund A and B	Manage and control the operation and management of power development fund in designated area, and work in their own position, for example, accounting, procurement and other related work for power development fund in designated area.	24
The sub-district headmen, the assistant sub-district headmen, and village headmen who are representatives of residents in community area.	Guide and lead residents in community on how to write and propose community projects. However, sometimes they are persons who write and propose community projects for residents in case the residents do not have knowledge on how to write and propose community projects. Some	18

Key informants	Roles and Responsibility	Number of key informants
	sub-district headmen, assistant sub-district headmen, and village headmen are also selected to the Community Development Committee (CDC) and Tambon Development Committee (TDC) representatives	
The sub-district headmen, the assistant sub-district headmen, and village headmen who are representatives of residents in community area. The residents who live in communities and receive any impact and problems from power plant and receive benefit from the operation and management of power development fund.	Vote for community projects when public forums are organized and write and propose community projects. Some residents who live in communities also have responsibility to be Community Development Committee (CDC) and Tambon Development Committee (TDC) representatives. The groups of residents are divided into the group of residents who propose community projects and get approval from power development fund and the group of residents who propose community projects but do not get approval from power development fund	48
	Total	**102**

Therefore, the total key informants are 102, who are purposively selected by their roles and responsibility of each key informant. All selected key informants have provided information and assisted the researcher to evaluate the performance of the

operation and management of power development fund. The results from the interviews with key informants become tools to evaluate the performance of power development fund and come out with the appropriate model for applying to power development fund in Thailand.

The researcher uses in-depth interviews with key informants to confirm the model from sustainability balanced scorecard. The researcher wants to confirm that the model is suitable and effective enough to be tools to make power development fund more efficient in the operation and management. The researcher collects information by in-depth interviews with key informants, for example, the director of Energy Regulatory Commission Regional Office, the manager of power development fund in designated area, the employees of power development fund in designated area, the sub-district headmen, the village headmen, and the residents who live in community areas and the persons who propose community projects.

The researcher collects power development fund in category A and B by the types of fuel mostly used for electricity generation in power plants in Thailand and the power plants operated by Electricity Generating Authority of Thailand (EGAT).

Table 3.2 The study areas selected by the 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).

Power Development Fund	Province
Power Development Fund of Mae Mao Power Plant	Lam Pang
Power Development Fund of North Bangkok Power Plant	Nonthaburi
Power Development Fund of Wang Noi Power Plant	Phra Nakorn Sri Ayutthaya
Power Development Fund of Bang Pa Kong Power Plant	Chachoengsao
Power Development Fund of Nam Phong Power Plant	Khon Kaen
Power Development Fund of Ratchaburi Electricity Company Limited	Ratchaburi

3.4 Data Analysis Method

3.4.1 In data analysis, the method of triangulation is applied to provide diverse ways for looking at the same phenomenon which include interview, observation, and secondary data as shown in figure 3.2

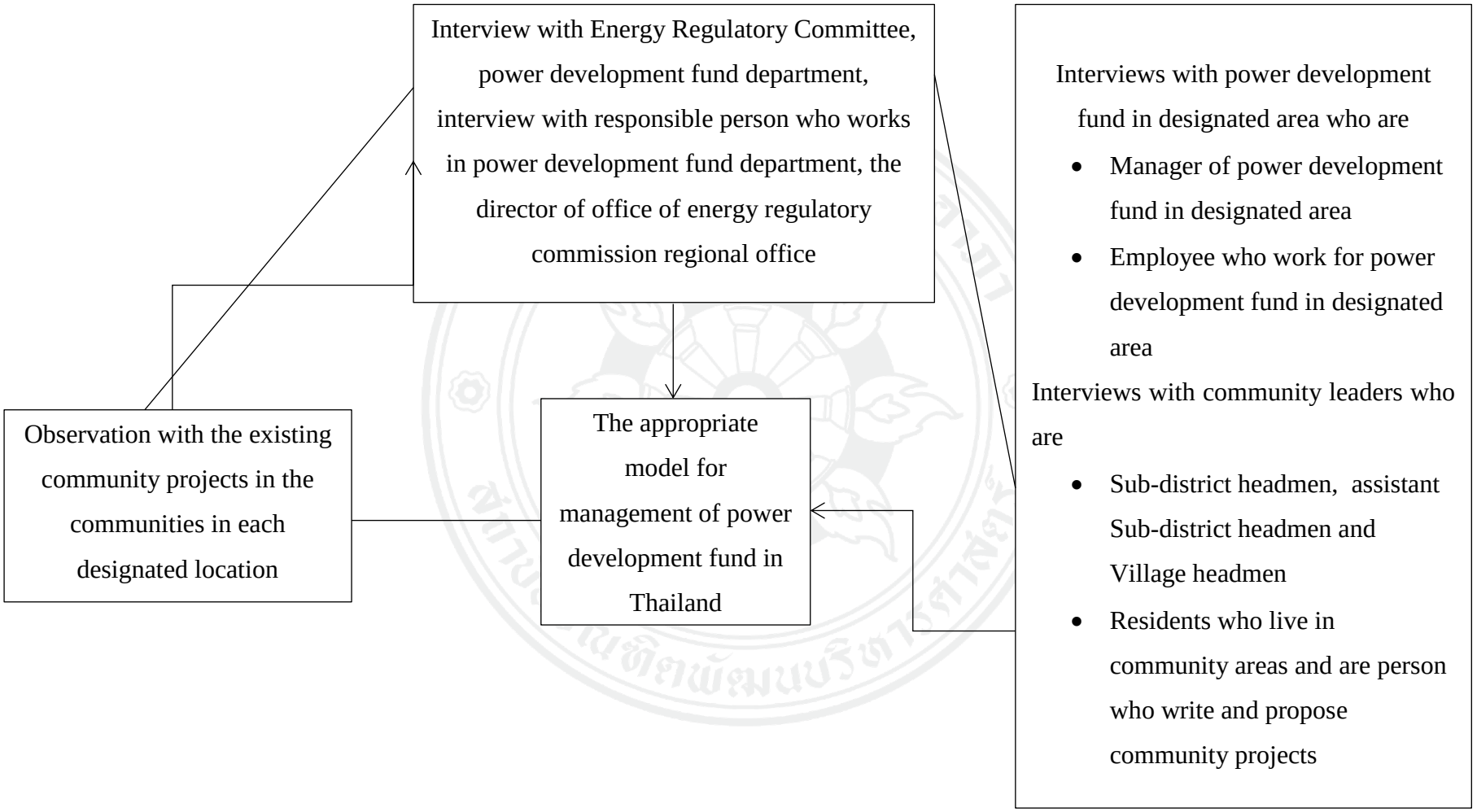

Figure 3.2 the method of triangulation

3.4.2 The Content Analysis

This study also uses content analysis employed for the qualitative analysis in this study that includes: 1) read all information carefully 2) evaluation all the terms; code the word that best describes each piece of information 3) group the terms; coded terms and form a hierarchy 4) look for relationship between the concepts 5) give the concept's structure and 6) discusses the model (Verhoeven, 2011, pp. 291–300).

Table 3.3 Eight Steps of Content Analysis

Steps	Descriptions	How To Use in Research
1. Read all the information related to research and all of inform which receive from collecting data and information	- Divided the information into small pieces that researcher can summarizes in one key term	- Study about related literature power development fund and Sustainability Balanced Scorecard theory (SBSC) - Describe interview results
2. Evaluation all the terms	- What value do the research elements (respondents) attach to that term? - This means interpreting the meaning. Are the terms negative in their tone, or positive?	- Evaluation all information i.e document about power development fund, international and local literature related to power development fund, document about the evaluation theory
3.Code the word that best describes each piece of information	- Use one code (word) to describe that piece of information; one of the things the researcher will	- Code the words that best describe the research

Steps	Descriptions	How To Use in Research
	be doing with it is summarizing the material - This kind of coding is known as open coding. It is done at the start of the analysis process and it is the step in defining the concepts that have been found. It is still very exploratory at this stage	
4.Group of terms	- What belong to what? This is where the researcher starts sorting process	- Group all of words related to concept of SBSC
5. Coded terms and form hierarchy	- What is the most important code, what's next, and so on	- Give the most important code under concept of SBSC for use in research
6. Looking for relationship between the concepts	- Make main groups and subgroups by checking to see which codes belong together and how they can be sorted. - Think carefully about the reasons the researcher has for grouping concepts, look for evidence for this in the text	- Group concept on each perspective under Sustainability Balanced Scorecard theory - Use key issues on each concept or perspectives under SBSC theory to find out relationship with operation and management of power development fund

Steps	Descriptions	How To Use in Research
7. Gives the concepts a structure	- Look for relationships between them and address the question as to why certain concepts are discovered and certain ranking in the concept - Brings these relationships and rankings together in a model or diagram	- Create conceptual framework under SBSC theory related to the operation and management of power development fund - Using conceptual framework to set up question on each issue related to key informants
8. Discuss Model	- Does it answer the question? - Does it raise more questions? - Is more information needed? If so, then researcher need to go back to collecting information until the researcher can formulate a complete answer to the central question	- Create model from the collected information - Test model with key informants and practioners

Source: Verhoeven (2011), pp. 291–300

3.4.3 Analysis of data by grouping the data under each perspective of SBSC theory and the results of evaluation are represented by effectiveness criteria from 3 point, 2 point and 1 point from getting information and data.

Table 3.4 Perspective, Issues, Questions and Key Informants

Perspective	Issues	Questions	Key Informants
The overall efficiency of operation and management	1.the power development fund support to make social development from the effect operation of power plant	1.1 How does power development fund where you are working support social development which get effect from the operation of power plant?	1.1 Collect data from interview with manager of power development fund, employee of power development fund in each category
		1.2 Have you ever proposed community projects which help to support to make social development in the communities under the support of budget from power development fund?	1.2 Collect data from interview with sub-district headmen, village headmen and residents who live around the operation of power development fund and propose for community projects who get approval and don't get approval on community projects.
	2. The support on using renewable energy and technologies that have minimal	2.1 How does power development fund where you are working support	2.1 Collect data from interview with manager of power development fund, employee of power

Perspective	Issues	Questions	Key Informants
	impact on the environment	using renewable energy?	development fund in each categories.
		2.2 Have you ever proposed community projects which support the using of renewable energy in the communities under the support of budget from power development fund?	2.2 Collect data from interview with sub-district headmen, village headmen and residents who live around the operation of power development fund and propose for community projects who get approve and don't get approve on community projects.
	3. The decentralize development to provincial areas (job creation)	3.1 How does power development fund where you are working support job creation for communities?	3.1 Collect data from interview with manager of power development fund, employee of power development fund in each categories.
		3.2 Have you ever proposed community projects which support the job creation in the	3.2 Collect data from interview with sub-district headmen, village headmen and

Perspective	Issues	Questions	Key Informants
		communities under the support of budget from power development fund?	residents who live around the operation of power development fund and propose for community projects who get approve and don't get approve on community projects.
	4. The decentralize development to provincial areas (increase income)	4.1 How does power development fund that you are working support on creating income for communities?	4.1 Collect data from interview with manager of power development fund, employee of power development fund in each categories.
		4.2 Have you ever proposed community projects which support the creation of income for the communities under the support of budget from power development fund?	4.2 Collect data from interview with sub-district headmen, village headmen and residents who live around the operation of power development fund and propose for community projects who get

Perspective	Issues	Questions	Key Informants
			approve and don't get approve on community projects.
	5. the enhance extensive electrification to various localities	5.1 How does power development fund where you are working support to make extensive electrification to various localities?	5.1 Collect data from interview with manager of power development fund, employee of power development fund in each categories.
		5.2 Have you ever proposed community projects which support to make extensive electrification to various localities under the support of budget from power development fund?	5.2 Collect data from interview sub-district headmen, village headmen and residents who live around the operation of power development fund and propose for community projects who get approve and don't get approve on community projects.
The management process perspective	1. The coordinating and participating with related organization	1.1 Have power development fund where you are working coordinate	1.1 Collect data from interview with the officer of power development fund

Perspective	Issues	Questions	Key Informants
		and corporate with related Organizations for example ERC, the local administration organization and also residents in the communities?	department , manager of OERC regional office, manager of power development fund in category A and B, employee of power development fund in category A and B.
	2. Reporting the progress of the operation and management of power development fund	2.1 Have power development fund where you are working reported the progress of the operation and management of power development fund to related organizations and also inform to residents in the communities or not?	2.1 Collect data from interview with the officer of power development fund department, manager of OERC regional office, manager of power development fund in category A and B, employee of power development fund in category A and B.
		2.2 Which channels that power development fund where you are working have reported the	2.2 Collect data from interview with the officer of power development fund department, manager of OERC

Perspective	Issues	Questions	Key Informants
		progress on the operation and management of power development fund to related organizations and all residents?	regional office ,manager of power development fund in category A and B, employee of power development fund in category A and B
	3. Participating of residents toward the operation and management of power development fund	3.1 Does the power development fund where you are working provide opportunity for related organization or resident to participate in the operation and management of power development fund?	3.1 Collect data from interview with manager of power development fund in category A and B, employee of power development fund in category A and B.
	4. the accountability and transparency on the operation and management of power development fund	4.1 Does the power development fund where you are working give an opportunity for every sector to participate on suggest, examine and scrutinize on the operation and	4.1 Collect data from interview with manager of power development fund in category A and B, the employee of power development fund in category A and B.

Perspective	Issues	Questions	Key Informants
		management of power development fund?	
Stakeholder perspective	1. the participation of stakeholders toward the operation of power development fund for example the attending of public forum, the opportunity for propose community project	1.1 Have you ever been participated in the operation and management of power development fund in designated area for example attending public forums?	1.1 Collect data from interview with stakeholder for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects.

Perspective	Issues	Questions	Key Informants
	2. the examine and scrutinize by stakeholders toward the operation and management of power development fund	2.1 Have you ever perceived about the information of power development fund for example the budget for formulating community project, the performance of power development fund which you can examine and scrutinize?	2.1 Collect data from interview with stakeholders for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects.
	3. the perception toward how to write and propose of community project	3.1 Have you ever written and proposed for any community project which formulate in your area?	3.1Collect data from interview with stakeholders for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for

Perspective	Issues	Questions	Key Informants
			community projects who get approve and don't get approve on community projects.
		3.2 Have you ever had opportunity to write and propose for any community project, and if you ever have had; how and what you get idea to write and propose community project from	3.2 Collect data from interview with stakeholder for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects.
The learning and development perspective	1.The supporting on knowledge and training for employee of power development fund	1.1 Do you receive any training and knowledge supported by ERC and power development fund	1.1 Collect data from interview with the officer of power development fund department, manager of OERC

Perspective	Issues	Questions	Key Informants
		which are benefit for working at power development fund in designated	regional office, the manager of power development fund in category A and B, employee of power development fund in category A and B.
The environmental perspective	1.Significant of Environment	1.1 How does power development fund that you are working give a significant toward environment management?	1.1 Collect data from interview with manager of power development fund in category A, B , the employee of power development fund in in category A, B.
		1.2 Have you ever proposed community projects which make communities to concern about the significant of environment under the support of budget from power development fund?	1.2 Collect data from interview with stakeholders for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects

Perspective	Issues	Questions	Key Informants
			who get approve and don't get approve on community projects.
	2. the treatment and remedy the effect from the operation of power plant	2.1 How does power development fund that you are working treat and remedy the environment that have effect from the operation of power plant in designated area?	2.1 Collect data from interview with manager of power development fund in category A, B , the employee of power development fund in in category A, B.
		2.2 Have you ever proposed community projects which related to treat and remedy the effect from the operation and management of power plant toward environment under the support of budget from power development fund?	2.2 Collect data from interview with stakeholder for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on

Perspective	Issues	Questions	Key Informants
			community projects.
	3.The problem solving on the pollution	3.1 How does power development fund that you are working solve pollution problems which come from the operation of power plant?	3.1 Collect data from interview with manager of power development fund in category A, B, the employee of power development fund in in category A, B.
		3.2 Have you ever proposed community projects which solve pollution problems from the operation of power plant in the communities under the support of budget from power development fund?	3.2 Collect data from interview with stakeholders for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects

Perspective	Issues	Questions	Key Informants
	4. the saving and protecting of natural resources	4.1 How does power development fund that you are working support activities which help to save and protect natural resources around the community areas?	4.1 Collect data from interview with manager of power development fund in category A, B , the employee of power development fund in in category A, B.
		4.2 Have you ever proposed community projects which create activities for saving and protecting natural resources under the support of budget from power development fund?	4.2 Collect data from interview with stakeholders for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects.

Perspective	Issues	Questions	Key Informants
Social Perspective	1.The rehabilitation of social that have effect from the operation of power plant	1.1 How does power development fund that you working support to rehabilitation and remedies the social from the operation of power plant?	1.1 Collect data from interview with manager of power development fund in category A, B, the employee of power development fund in in category A, B.
		1.2 Have you ever proposed community projects which support treatment and remedy the social that get effects from the operation of power plant under the support of budget from power development fund?	1.2 Collect data from interview with stakeholder for example the sub-district headmen ,village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects.

Perspective	Issues	Questions	Key Informants
	2. The job creation from the operation of power development fund	2.1 How does power development fund where you are working support job creation for communities?	2.1Collect data from interview with manager of power development fund in category A, B, the employee of power development fund in in category A, B.
		2.2 Have you ever proposed community projects which support the job creation in the communities under the support of budget from power development fund?	2.2 Collect data from interview with stakeholders for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don’t get approve on community projects.

Perspective	Issues	Questions	Key Informants
	3. The social corporation from the operation of power development fund	3.1 How does power development fund that you working support the social corporation among residents in the communities?	3.1 Collect data from interview with manager of power development fund in category A, B , the employee of power development fund in in category A, B.
		3.2 Have you ever proposed community projects which create social corporation in the communities under the supporting budget from power development fund?	3.2 Collect data from interview with stakeholder for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don’t get approve on community projects.

Perspective	Issues	Questions	Key Informants
	4. The development of health care and medical service toward the effect from the operation of power plant	4.1 How does power development fund that you working support health care and medical service for the communities?	4.1 Collect data from interview with manager of power development fund in category A, B, the employee of power development fund in in category A, B.
		4.2 Have you ever proposed community projects which support healthcare and medical service and it's provide the benefit for communities	4.2 Collect data from interview with stakeholder for example the sub-district headmen, village headmen and residents who live around the operation of power development fund category A and B and propose for community projects who get approve and don't get approve on community projects.

3.5.10 It results in an appropriate model to use in the operation and management of power development fund. After the appropriate model is set up, the researcher will use the model to apply to key informants to confirm the model. The researcher conducts interviews with 72 key informants who are the managers and employees of power development fund in designated area, the sub-district headmen, the assistant sub-district headmen, the village headmen, and the residents who live in the area.

3.5 The Criteria and Scores (Indicator)

Table 3.5 The issues and indicators (scores)

Perspective	Issues	Indicators (Scores)
The overall efficiency of operation and management	1. The power development fund develop society affected by operation of power plant.	The power development fund clearly help community affected by the operation of power plant. (3) The power development fund minimally help community affected by the operation of power plant. (2) The power development fund never help community affected by the operation of power plant. (1)
	2. The support of the use of renewable energy and technologies that have minimal impact on the environment.	The power development fund clearly support the use of renewable energy and technologies. (3)

Perspective	Issues	Indicators (Scores)
		Power development fund minimally support the use of renewable energy and technologies that have moderate impact on the environment. (2) Power development fund do not support the use of renewable energy and technologies that have minimal impact on the environment. (1)
	3. The decentralized development to provincial areas. (job creation)	The operation and management of power development fund clearly help creating job in the area. (3) The operation and management of power development fund moderately help creating jobs in the area. (2) The operation and management of power development fund do not help creating jobs in the area. (1)
	4. The decentralized development to provincial areas.(increased income)	The operation and management of power development fund significantly help increase

Perspective	Issues	Indicators (Scores)
		income for community. (3) The operation and management of power development fund moderately help increase income for community. (2) The operation and management of power development fund do not help increase income for community. (1)
	5. The enhanced extensive electrification to various localities.	Power development fund clearly support the extensive electrification to various localities which provide opportunity for residents to have electricity in distant areas. (3) Power development fund moderately support the extensive electrification to various localities which provide opportunity for residents to have electricity in distant areas. (2) Power development fund do not support the

Perspective	Issues	Indicators (Scores)
		extensive electrification to various localities which provide opportunity for residents to have electricity in distant areas.(1)
The management process perspective	1. The coordination and participation with related organizations.	The power development fund significantly coordinate with related organizations, for example, Energy Regulatory Commission, OERC Regional Office, etc. (3) The power development fund moderately coordinate with related organizations, for example, Energy Regulatory Commission, OERC Regional Office, etc. (2) The power development fund never coordinate with related organizations, for example. Energy Regulatory Commission, OERC Regional Office, etc. (1)

Perspective	Issues	Indicators (Scores)
	2. Reporting the progress of the operation and management of power development fund.	Power development fund report the progress of power development fund to related organizations or residents 4 times a year or more. (3) Power development fund report the progress of power development fund to related organizations or residents 3 times a year. (2) Power development fund report the progress of power development fund to related organizations or residents twice a year or less. (1) The power development fund have channels to report the progress of operation and management to related organizations and residents. (3) The power development fund do not have channels to report the progress of operation and management to related

Perspective	Issues	Indicators (Scores)
		organizations and residents. (1)
	3. Participation of residents in the operation and management of power development fund.	Every related organization and resident who live around the operation and management of power plant have opportunity to participate in the operation and management of power development fund, for example, attending public forum. (3) Power development fund do not provide opportunity for related organizations and residents or stakeholders to participate in the operation and management of power development fund, for example, attending public forum.(1)

Perspective	Issues	Indicators (Scores)
	4. The accountability and transparency of the operation and management of power development fund.	The power development fund clearly disclose information which benefits related organizations and residents or stakeholders, for example, the use of budget. (3) The power development fund moderately disclose information which benefits related organizations and residents or stakeholders, for example, the use of budget. (2) The power development fund do not disclose information which benefits related organizations and residents or stakeholders, for example, the use of budget. (1)

Perspective	Issues	Indicators (Scores)
Stakeholder perspective	1. The participation of stakeholders in the operation of power development fund, for example, attending public forum, opportunity to propose community projects.	The stakeholders significantly participate in the operation of power development fund, for example, attending public forum and participating in proposing the community projects. (3) The stakeholders moderately participate in the operation of power development fund, for example, attending public forum and participating in proposing the community projects. (2) The stakeholders do not participate in the operation of power development fund, for example, attending public forum and participating in proposing the community projects. (1)
	2. The examination and scrutiny by stakeholders of the operation and management of power development fund.	The stakeholders have the opportunity to examine and scrutinize the operation and management of power development fund. (3)

Perspective	Issues	Indicators (Scores)
		The stakeholders do not have the opportunity to examine and scrutinize the operation and management of power development fund. (1)
	3. The perception of how to write and propose community projects.	The stakeholders have the opportunity to learn how to write and propose community projects. (3) The stakeholders do not have the opportunity to learn to write and propose community projects.(1)
The learning and development perspective	1. The support of knowledge and training for employees of power development fund.	The power development fund organize activities/ knowledge that support and improve knowledge of employees at power development fund more than 3 times a year. (3) The power development fund organize activities/ knowledge that support and improve knowledge of employees at power development fund twice a year. (2)

Perspective	Issues	Indicators (Scores)
		The power development fund organize activities/ knowledge that support and improve knowledge of employees at power development fund once a year or do not organize any activities. (1)
The environment perspective	1.Significance of Environment	The power development fund clearly support any activities which are significant to the environment through the support of community project. (3) The power development fund provide minimal support of any activities which are significant to the environment through the support of community project. (2) The power development fund do not provide support of any activities which are significant to the environment through the support of community project. (1)

Perspective	Issues	Indicators (Scores)
	2. The treatment and remedy from the impact of the operation of power plant.	The power development fund provide clear treatment and remedy of the environment affected by the operation of power plant. (3) The power development fund provide moderate treatment and remedy of the environment affected by the operation of power plant. (2) The power development fund do not provide treatment and remedy of the environment affected by the operation of power plant. (1)
	3. The solution to pollution problems.	The power development fund clearly solve pollution problems by following the standards of laws and regulations. (3) The power development fund moderately solve pollution problems by following the standards of laws and regulations. (2)

Perspective	Issues	Indicators (Scores)
		The power development fund do not solve any problem occurred from the operation of power plant. (1)
	4. The conservation and protection of natural resources.	The power development fund clearly organize activities that save and protect natural resources. (3) The power development fund moderately organize activities that save and protect natural resources. (2) The power development fund do not organize activities that save and protect natural resources. (1)
		The power development fund provide clear support for stakeholders to participate in the activities that save and protect natural resource in the area. (3)

Perspective	Issues	Indicators (Scores)
		The power development fund provide minimal support for stakeholders to participate in the activities that save and protect natural resource in the area. (2) The power development fund do not support stakeholders to participate in the activities that save and protect natural resources. (1)
Social Perspective	1. The rehabilitation for society affected by the operation of power plant.	The power development fund provide clear rehabilitation for society affected by the operation of power plant. (3) The power development fund provide moderate rehabilitation for society affected by the operation of power plant. (2) The power development fund do not provide rehabilitation for society affected by the operation of power plant. (1)

Perspective	Issues	Indicators (Scores)
	2. The job creation from the operation of power development fund.	Power development fund clearly support and provide job creation opportunity for residents around the operation of power plant. (3) Power development fund provide minimal support and job creation opportunity for residents around the operation of power plant. (2) Power development fund do not support and provide job creation opportunity for residents around the operation of power plant. (1)
	3. The social cooperation from the operation of power development fund.	The power development fund clearly organize activities which help foster social cooperation in the community. (3) The power development fund moderately organize activities which help foster social cooperation in the community. (2)

Perspective	Issues	Indicators (Scores)
		The power development fund do not organize activities which help foster social cooperation in the community. (1)
	4. The development of health care and medical service from the impact of the operation of power plant.	The power development fund clearly organize activities which support development of health care and medical service to residents around the area. (3) The power development fund moderately organize activities which support development of health care and medical service to residents around the area. (2) The power development fund do not organize activities which support development of health care and medical service to residents around the area. (1)

3.6 The weights of indicators in each perspective under the Sustainability Balanced Scorecard Theory

Each perspective has different weights depending on the significance of the operation and management of power development fund. The researcher sets the weight of 20% on the overall efficiency of operation and management, management, and the stakeholder perspectives. The researcher sets the weight of 10% on learning perspective and sets the weight of 15 % on environment, and social perspectives as shown in table 3.6.

The researcher sets the weight of 20% on the overall efficiency of operation and management, management, stakeholder perspectives because those perspectives are every important for the operation and management of power development fund. The power development fund will be more effective and efficient in the operation and management under the three perspectives. For the weight of 10 % on learning perspective, the researcher is concerned that learning perspective is the internal factor of the operation and management of power development fund. Therefore, the researcher sets the weight indicator of 10%. For the weight of 15% on the environment and social perspective, the researcher is concerned that the operation and management of power development fund related to the environment and society through the community projects that residents propose and the existing community projects will provide benefit to the environment and society. Therefore, the researcher sets the weight of 15 % for the two perspectives.

Table 3.6 Weights of indicator of each perspectives under Sustainability Balanced Scorecard Theory (SBSC)

Perspective	Weights of indicator
The overall efficiency of operation and management perspective	20
The management perspective	20
The stakeholder perspective	20
The learning perspective	10
The environment perspective	15

Perspective	Weights of indicator
The social perspective	15
In total	100

CHAPTER 4

RESULTS

In this chapter, collected information and data from the interviews are presented. The key informants were namely: 1) the Energy Regulatory Commission (ERC) and the Power Development Fund department about the overall operation and management of power development fund in Thailand 2) the director of power development fund management department 3) The employees of the Power Development Fund Department, whereby the researcher collected data from interviews with the employees of power development fund department with four people specializing in each sector of power development fund department 4) The directors of the Office of the Energy Regulatory Commission Regional Office (OERC) who were responsible for managing the power development fund in designated area with six people in different locations according to power development funds studied in the category A and B 5) Six managers of power development fund in the category A and B in six locations of power development fund A and B 6) The employees at power development fund in the category A and B. The number of employees interviewed was about two people from each power development fund in the category A,B 7) The sub-district headmen and village headmen who were representatives of residents in the areas that received any impact and problems from power plant and received benefits from the operation and management of power development fund. The sub-district headmen and village headmen were the leaders of communities who knew about the situation and any problems occurred in the communities from the operation of power plant and also served as representatives of communities to participate in the operation and management of power development fund and might also be selected to be representatives of Community Development Committee (CDC) and Tambon Development Committee (TDC) and 8) Residents in

communities who lived in the areas that received any impact and problems from power plant and received benefit from the operation and management of power development fund. Residents were group of people who attended public forum to vote for community project and also had opportunity to write and propose community projects with 36 people in six designated area. The number of residents interviewed was divided into group of residents who proposed community project and got approval from power development fund and group of residents who proposed community project but their projects did not get approval from power development fund. Moreover, this chapter also consists of the evaluation on the operation and management under the Sustainability Balanced Scorecard theory and it comes out with the result from the evaluation in each selected power development fund in designated area. The evaluation of each selected power development fund also comes out with point and weight indicators related to each perspective under the Sustainability Balanced Scorecard theory.

4.1 The Energy Commission and Power Development Fund

Since the power development fund has been set up, the "Power Development Fund (the Fund)" under the Office of the Energy Regulatory Commission (OERC) pursuant to the Energy Industry Act, B.E. 2550 (2007), until now the operation and management of power development fund following the objectives of power development fund and create sustainability development to the community. However, those development are not outstanding and the community projects which focus on an environment perspective are less than it should be. Therefore, in fiscal year 2018, the OERC has set up plan for community to propose more environment projects about 10 % - 20 %.

4.1.1 The Budgeting Planning for Power Development Fund

From the interviews, it was found that, according to the regulation of the ERC on Power Development Fund for Development or Rehabilitation of Localities Affected by Power Plant Operation, B.E. 2553 (2010), effective since 9 February 2011, structure

was determined for power development fund in category A, B and C in each designated area and regulations were put in place for the use of budget in each category A,B and C. The power development fund also had fund operation on contributions to allocate budget to power development fund.

The allocation of the budget of power development fund to the community in each fiscal year would more or less depend on the contribution rate to power plant imposed on electricity generation licensees during commission. If the power plant generated less electricity, the amount of budget allocated to residents to formulate community projects in designated areas would be less accordingly.

The website of ERC had information about the power development fund in each category A, B and C, list of the budget that the Energy Regulatory Commission has allocated the budget to power development fund in each fiscal year, information on the use of budget of each power development fund, list of community projects that have been approved in each fiscal year, the list of procurement on community projects, pictures of all activities about community projects.

4.1.2 The Staffing Management in Power Development Fund

From the interviews, for the employees or staff of power development fund in each category A, B and C, the ERC supported knowledge and training to the employees or staff. Moreover, the ERC assigned internal audit to examine the performance of employees or staff of power development fund and also examined the operation and management of power development fund in each category by random sampling.

The Energy Regulatory Commission (ERC) supported knowledge and in-house trainings to the officers. The details of the training were about the knowledge necessary for their job in the ERC. The ERC provided the opportunity for officers to participate in training. However, with fewer officers in the ERC, therefore the opportunity for all of the officers to participate in various field of training was not much. The details of the knowledge which ERC supported officers were on purchasing and procurement, computer program such as microsoft office, risk management, strategy map planning, legal issue. Moreover, the ERC assigned officers to provide knowledge on accounting

and the program to report on the progress of the operation and management to Energy Regulatory Commission Regional Office and power development fund in designated area.

The ERC bought the program on accounting called Dynamic Ax to use in all Energy Regulatory Commission Regional Offices. This program was used to formulate budget and monitor the use of budget. Another program that the ERC brought to all Energy Regulatory Commission was e-fund which was used to report the progress of planning of power development fund. From those programs, the ERC received complaints from the users who faced the problems, for example, the complication of program was the limited user of program. But recently the ERC tried to solve the problem and develop user-friendly program. If they had any problems derived from the use of the program, the officers could ask for help from the ERC.

The power development fund in category A and some of category B have already used the Dynamic Ax program for monitoring the use of the budget. But some power development fund in category B and category C still use just Microsoft Excel to monitor the use of budget. However, in the future, the ERC has plan to use Dynamic Ax in all power development fund in category A, B and C.

4.1.3 The Direction on Decision-Making to Approve Community Project

From the interviews, it was found that for the criteria in making decision to approve the community projects, in the past the ERC gave authority to a community development committee to approve community projects. But most community projects were small. Therefore, the Energy Regulatory Commission deployed a policy to determine proportion of large community projects and small community projects in 70%:30%. The reasons why the Energy Regulatory Commission determined the proportion of big and small community projects because they wanted residents at designated area to propose community projects which create sustainability to the community throughout the community project. Recently, the community projects requiring the budget of more than 300,000 baht needed to get approval from the Energy Regulatory Commission and for the community projects requiring the budget of less

than 300,000 baht could get approval by community development committee of power development fund in designated area.

The power development fund department had a check list to check the community project that residents propose to get approval for community projects. In the website of power development fund, there was document for residents to learn how to propose the community projects and the document that was necessary to propose community projects, for example; the process of procurement , the process of the construction of project. Problems of community projects that did not get approval from the ERC might come from the reason that the residents did not follow the check- list and necessary document according to the ERC requirements.

4.1.4 The Evaluation of the Performance of Power Development Fund

From the interviews, it was found that the ERC has assessed and evaluated the performance of power development fund by examining all power development fund category A and random sampling in some category B. Moreover, the ERC has launched a public relation campaign, "Power Development Fund Awards" to disseminate the performance of Power Development Funds in designated areas. Importantly, this activity would help develop and improve the operation and management of local Power Development Funds to be more efficient, having a good managerial system with good governance, transparency, accountability, as well as sustainability. Except for the assessment and evaluation, the performance of power development fund in designated areas, the ERC hires outsourced person to assess and evaluate the performance of community projects in designated area by random sampling.

The check list that the ERC has assigned to all of power development fund to follow the details of the list was one of the tools to evaluate and assess the operation and management and it could prove that power development fund was successful or not in the operation and management and the support of community projects. Recently, the ERC has tried to develop tools for evaluating the performance of power development fund on the operation and management and the support of community projects.

Moreover, the ERC would give authority to community development committee in designated area to evaluate the performance of power development fund by themselves.

4.2 The Operation and Management of Power Development Fund Category A

4.2.1 Power Development Fund Mae Mao Power Plant

4.2.1.1 The Overall Efficiency of Operation and Management Perspective

The power development fund of Mae Moh Power Plant had budget for supporting the formulation of community project about 300 million baht per year. Tambon Development Committee (TDC) of power development fund of Mae Moh Power Plant would survey the needs of local residents and the impact of power plant operation to serve as input for the formulation of community projects. The committee has promoted and supported the formulation of community projects, by organizing public forums at Tambon or village level.

The community projects for district level were:

1. The community project for education, for example, scholarship project with budget of 12 million baht, contract teacher project, etc. The budget that power development fund at Mae Moh Power Plant has supported education projects amounted to about 30 million baht.

2. The community project for treatment and recovery of health and well-being of stakeholders affected by the operation of power plant

The community projects for Tambon level were:

1. The community project for developing water resource and fundamental structure, for example, renovating or fixing road

The number of community project that power development fund approved in a year was around 700-800 projects. Therefore, to follow up, examine, and evaluate the community project performance were impossible. The power development fund of Mae

Moh Power Plant would assign employees or staff to the community areas to follow up the community project that had been formulated or not.

To organize public forum, the power development fund of Mae Moh Power Plant had set the schedule for organizing public forum, for example, the power development fund would set the period for organizing public forum for 15 days. Within 15 days, all Tambons around the operation of power plant would have public forums. Sometimes all Tambons would organize public forum to finish in one day. The representatives of the Tambon Development Committee would organize public forums and employees and staff of power development fund would participate in the forums.

After formulation of community project in each area, the power development fund would evaluate the performance of community project whether residents or people were satisfied with those projects by using questionnaire.

In 2016, the budget that the power development fund of Mae Moh Power Plant received approval by the Energy Regulation Commission amounted to 368,573,762.40 baht divided into two categories; the budget for support of community project amounting to 351,915,461 baht and the budget for operation and management in power development fund amounting to 16,658,301.40 baht at the end of fiscal year

From the interviews with sub-district headmen and village headmen who lived around Mao Moh project affected by the transport of vehicle used in the operation of power plant. The road and street repair project would help residents to have good quality of road and street for use in daily life.

From the interviews with residents living around Mae Moh area, it was found that most community projects proposed by the residents were about agriculture projects and community' s development projects, for example, village development projects

From the interviews with the sub-district headmen and village headmen around Mae Moh area, they said that, in the past, residents had plan to propose community project on the renewable energy, for example, solar cell project which could be used in the community. But they faced the problem of the management of the solar cell, on the person who would take care of the solar cell. Therefore, the plan was canceled by residents due to the concern of the management problem of solar cell.

The power development fund of Mae Moh Power Plant also supported decentralized development to provincial areas in job creation and increased income by

formulation of community projects. In Mae Moh area, the community projects would be about the job creation project, for example, the creation of occupational group for mushroom cultivation project. The mushroom farming could provide jobs for residents in the area.

Around Mae Moh area, there were also community projects that supported the extension of electricity to distant locations which residents proposed community projects by letting local administrative and related organizations take control of the community project. The sub-district headmen of Sob Pard area informed that the residents or stakeholders used to propose community project on the extension of electrification but it was rejected because the extension area was connected to the conserved forest. In Sob Jang village, residents also proposed community project on the purchasing battery project to be used for cell panel in the village.

For the conclusion on the overall efficiency of operation and management of Power Development Fund of Mae Moh Power Plant, the power development fund supported residents to propose community projects on the road and street repairing project affected by the transport. Moreover, the power development fund supported residents to propose community projects which created jobs in the designated area, for example, the creation of occupational group for mushroom cultivation project. The power development fund also supported residents to propose community projects to increase income for community around power plant in designated area, for example, the sales of mushroom from the cultivation project. The power development fund also supported residents to propose community projects to extend the electrification to various localities around Mae Moh area who lived in distant locations which were the extensive electrification project.

4.2.1.2 The Management Process Perspective

The power development fund of Mae Moh Power Plant has cooperated and coordinated with representatives from provinces, local administrative organizations at least twice a month and always reported to Office of the Energy Regulatory Commission on the progress of operation and management. The power development fund of Mae Moh Power Plant has also reported the progress of operation and management of power development fund to residents or local people. The people's

sector representative members of Power Development Fund Committee would distribute the report to local communities.

The power development fund of Mae Moh Power Plant has broadcasted the operation and management twice a month and published annual report once a year. Each year, power development fund of Mae Moh Power Plant also organized events by inviting government sector, leaders of communities to receive the annual progress of operation and management of power development. The power development fund also had website to inform about the operation and management of power development fund to residents.

The power development fund supported the participation of residents in the operation and management of power development fund through public forums to propose and vote for community projects and the pre-meeting that allowed the residents in the area to discuss the problems that needed to be solved in the area.

The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency and accountability of power development fund through the information on the annual report

The conclusion on the management process perspective of power development fund of Mae Moh Power Plant, the power development fund has coordinated with related organization, for example, a provincial governor and local administrative organization at least two times a month to report the operation and management of power development fund. The reporting on the progress of the operation and management to residents and related organizations was at least two times a month and report progress through an annual report once a year. The power development fund supported the participation of residents in attending public forum to propose and vote for community projects. Moreover, residents would be able to examine and scrutinize the transparency and accountability of power development fund.

4.2.1.3 The Stakeholder Perspective

From the interviews with the sub-district of Sob Pard, Mae Moh, and Ban Dong, it was found that the power development fund of Mae Moh Power Plant reported the amount of budget distributed for the community's use to formulate projects and the

progress of the operation and management of power development fund when the public forum was organized. Sometimes, the Community Development Committee and the Tambon Development Committee would set up meeting with residents around Mae Moh area to inform about the budget used to formulate community projects. The power development fund in designated area, the Community Development Committee and the Tambon Development Committee provided information on the operation and management of power development fund to residents or stakeholders who lived in the area but did not report the progress and the performance of community projects formulated in the areas.

From the interviews with the residents who lived around the operation and management of power development fund, it was found that they had the opportunity to participate in the power development fund through public forum. The residents were informed about the organization of public forum through voice announcement. However, before residents attended public forum, the sub-district headmen in Mae Moh area would organize the pre-meeting with the residents to discuss the problems that they faced in the area, the problems that needed to be solved and what they wanted to improve in their community. Because around the Mae Moh Power Plant, residents faced a lot of problems from the operation of power plant. Therefore, the pre-meeting would provide the opportunity to discuss the real problems needed to be solved. It would also save time to propose and vote for community project on the day that public forum was organized and it helped reduce the conflict among residents because the residents had the pre-meeting to discuss on what they really wanted already. During the public forum, the power development fund had the budget to provide snack and drinks for residents who attended public forum.

The sub-district headmen and village headmen also said that residents around Mae Moh area had the opportunity to examine and scrutinize the operation of power development fund through the participation of public forum which they knew and could examine the amount of budget that power development fund allocated for formulate community project in each fiscal year. Moreover, the residents had a chance to visit power development fund office to ask about the budget and the performance of power

development fund of the community projects in areas. The residents could examine and scrutinize the community projects from the signboard that power development fund informed after the formulation of community project and the end of the project.

The sub-district headmen and village headmen around Mae Moh area had the opportunity to write the document to propose community project and also to teach residents on how to write and propose the community project for the budget of less than 300,000 baht. The sub-district headmen and village headmen would set up the meeting with residents to gather together and write document to propose community projects. The sub-district headmen of Sob Pard area had the opportunity to propose at least 3-4 community projects per fiscal year. The sub-district headmen of Mae Moh area had the opportunity to propose at least 6-7 community projects per fiscal year.

From the interviews with residents who lived around Mae Moh area, it was found that the sub-district headmen and village headmen provided the opportunity for residents to vote for community project that they wanted. Most of them had the opportunity to write and propose community projects and those community projects that they proposed got approval from the authorized person. Some residents who did not have knowledge to write document to propose community projects chose to vote for community projects and gave the opportunity for the sub-district headmen and village headmen to write and propose community project for them.

From the interviews with the sub-district headmen, village headmen, and residents, it was found that power development fund had plan and budget to assign persons with knowledge on how to write and propose community project, and to teach and inform about how to write and propose community project.

From the interviews with the residents, it was also found that if the community projects proposed by the residents did not get approval from the authorized person, the document would return to the communities for adjustment or addition of some necessary document under the list required by power development fund. After the adjustment and addition, the residents could send back to get approval. From the interviews with residents, it was also found that when the document was returned to

them for adjustment or addition of some more necessary documents, when they returned it back to power development fund, the community projects were approved by the authorized person.

The community projects formulated around the Mae Moh area did not receive any comments from residents on operating the community projects and the community projects did not face any problems of the operation and management. All community projects proposed by the residents got approval from power development fund and authorized person.

Most community project that residents around the Mae Moh area proposed for community project were about the extended project or continuous project which did not end in each fiscal year, for example, reconstruction, temple repair projects. Some of community projects which residents also proposed were about career promotion on agriculture, farming, fishing, and wicker projects, purchasing medical equipment project for health promoting hospital.

The community projects which residents around the Mae Moh area proposed must not offend the conserved forest and it should not be similar to the project that local organization did. The community project should provide personal benefit and should not formulate in the private area that had owners.

From the interviews with residents, it was found that when they proposed community project to get approval from power development fund, the project was similar to another one. Therefore, the power development would recommend the person who proposed community project to combine two projects into one big project, for example, the road repair project.

From the interviews with the residents who wrote and proposed community projects in Mae Moh area, it was found that the amount of budget that power development fund allocated for them was sufficient to contribute to development in communities. The budget that communities received from the allocation of budget would be used in the community project related to school, temple, and hospital in the area. The residents suggested that they wanted power development fund to come to the area to inform and teach how to write and propose community projects.

After the community projects end, the power development fund and authorized person would come to examine and scrutinize the existing community projects in the areas. When the community projects were formulated, residents would receive information about each community project formulated in the area through voice broadcast in the community. However, in some community projects formulated by local administration, residents were not aware of them.

The sub-district headmen, village headmen, and residents informed that the power development fund of Mae Moh Power Plant went well in operation and management. But according to their point of view, the regulation of power development fund still caused problems for them for proposing and formulating community projects.

For the conclusion of the stakeholder perspective of power development fund of Mae Moh Power Plant, the stakeholders around the operation of power development fund had the opportunity to participate in public forum operated and organized by power development fund. By attending public forum, stakeholders knew and examined the amount of budget allocated by the power development fund to formulate community projects in each fiscal year. Moreover, the stakeholders had a chance to visit power development fund office to ask about the budget and the performance of power development fund in the community projects in the areas. The stakeholders could examine and scrutinize the community projects from the signboard that power development fund informed after formulating community projects and when the project ended. The stakeholders had a chance to learn how to write community projects suggested by the employees of power development fund.

4.2.1.4 The Learning and Development Perspective

From the interviews with the employees of power development fund of Mae Moh Power Plant, it was found that they have received the training and knowledge at least once or twice a year. Most trainings were about procurement and useful knowledge, for example, accounting and finance or new knowledge that could apply to work in the office. But they suggested that the number of trainings should be more than the present and the method of training was not good enough and should be improved.

On the conclusion of the learning and development perspective of power development fund of Mae Moh Power Plant, the power development fund has supported and improved knowledge of employees or staff of power development fund 1-2 times a year. The trainings were about the procurement and useful knowledge, for example, accounting and finance.

4.2.1.5 The Environmental Perspective

From the interview with acting manager of power development fund of Mae Moh Power Plant, it was found that the residents propose community projects related to environment with the following examples:

The environment community projects around the Mae Moh area were about the community project which raised the residents' concern about the significance of environmental management, for example, the training project for young generation about the significance of environment. The young generation around the Mae Moh area would have the opportunity to learn and understand the importance and significance of environment.

The project of treatment and remedy affected by the operation of power plant, for example, landscape development project affected by the operation of power plant. The operation of power plant might impact the landscape around the power plant. Because due to the operation of power plant, the landscape could subside and the subsidence might impact the environment in the area.

The community projects which helped solve pollution problems, for example, canal digging project for water storage which could solve wastewater problem from the operation of power plant and it would also allow the residents to have clean water to use in their daily lives.

The community projects which created activities for residents to participate in the protection of the environment and natural resources, for example, the community project of providing knowledge for residents on how to prevent wildfire.

The community projects which provided the opportunity to participate in the activities to protect environment and natural resources by participating in training

activities to fight forest fire. From the community project, the residents would be trained on how to protect forest from fire problem and to protect natural resources.

For the conclusion of the environment perspective of power development fund of Mae Moh Power Plant, the residents proposed community projects supported by power development fund of the budget to formulate community projects, for example, the training project for young generation about the significance of environment, a landscape development project, a canal digging project for water storage which could solve wastewater problem, the training on how to protect forest from fire.

4.2.1.6 The Social Perspective

From the interview with acting manager of power development fund of Mae Moh Power Plant, it was found that before the residents propose community project, the employees of power development fund of Mae Moh Power Plant helped develop and rehabilitate community by providing information on doing or making community project. Before organizing public forum, power development fund has encouraged and supported a survey on the needs of local residents and on the power development impact to serve as input for the development of community projects.

From the interview with acting manager of power development fund of Mae Moh Power Plant, it was found that the residents propose community project related to social projects with the following examples:

The rehabilitation of community affected by the operation of power plant, the residents proposed community projects to improve plumbing in communities affected by the operation of power plant. By improving the plumbing, it would help residents to have good quality water to use in the communities and it would contribute to social rehabilitation.

The power development fund of Mae Moh Power Plant has also supported the rehabilitation and remediation affected by the construction and operation of power plant. The residents or people would formulate community project after public forum organized by power development fund. The community project was formulated, related

to the rehabilitation and remedies affected by the construction and operation of power plant; for example, road repair project around the power plant.

The job creation under the support of power development fund of Mae Moh Power Plant consisted of the following examples: the contract teacher project which encouraged residents or local people around the Mae Moh area to apply as contract teachers to teach in school around the Mae Moh area. The selection of contract teachers would be authorized by the school.

The residents around the Mae Moh area also proposed the community projects which supported job creation in agriculture, farming, and animal project which helped reduce costs. The agriculture projects followed the Sufficiency Economy Philosophy of the late King Rama 9. After farming and harvesting, the residents could sell the products in the central market or community market around the Mae Moh area to earn income. For example, the wicker project which residents gathered into a group, making bags, and selling them in the market.

The power development fund of Mae Moh Power Plant had budget (special budget) to support quality of life. The amount of special budget was 200,000 Baht a year. The residents or local people in Mae Moh area could ask power development fund to use the special budget without participating and attending public forums. However, to use the special budget, the Community Development Committee (CDC) must approve the projects. These community projects included, for example, temple activities project, supporting students to participate in "To Be Number One" project.

The social corporation projects which residents proposed around the Mae Moh area were about cultural preservation activities, for example, equipment purchase to use in the activities of Songkran Festival (Thai traditional New Year' day). The social cooperation project formulated around the Mae Moh area were about cultural support or sport activities. The community projects related to social improvement were about the projects under the Sufficient Economy Theory of the late King Rama 9 and temple reconstruction projects.

For the support of health care around the Mae Moh area, the residents or stakeholders would propose the community project to support the Village Health Volunteer by providing knowledge to residents about health care, purchasing of necessary equipment for the health promoting hospital, purchasing of mosquito spray, and visiting the bed patient projects.

For the conclusion of the social perspective of power development fund of Mae Moh Power Plant, residents proposed community projects for plumbing, social cooperation, health care and medical services projects.

The Success of the Operation and Management of Power Development Fund of Mae Moh Power Plant

In 2017, power development fund of Mae Moh Power Plant managed and recovered the problems of water resource for residents or local people around the Mae Moh area. The power development fund would encourage and suggest local residents to do community projects related to the problems.

For the process to disburse budget from power development fund of Mae Moh Power Plant to use for project implementation, the residents or people must give evidence and document to power development fund.

The Problems and Obstacles of the Operation and Management of Power Development Fund of Mae Moh Power Plant

From the interviews with the employees of power development fund of Mae Moh Power Plant, it was found that residents and stakeholders thought that all community projects that they had proposed would be approved and selected by the Community Development Committee. But in fact the Community Development Committee would select some projects related to 11 aspects of power development fund criteria. The community seemed not understand about the regulation of power development fund.

The power development fund of Mae Moh Power Plant found that after the community has proposed the community projects and power development fund has

provided budget to formulate projects, when power development fund has followed up the projects, the projects did not exist.

The power development fund of Mae Moh Power Plant also faced the problem of transparency of the operation and management of power development fund.

The power development fund faced the perception problem of residents or local people on the process of formulation of the community projects, for example, the disbursement of money for project implementation.

Most community projects that residents and stakeholders proposed around the Mae Moh area were short-term projects.

The employees of power development fund said that the trainings that power development fund provided for them were not enough and they suggested power development fund provide more trainings.

From the interview with acting manager of power development fund of Mae Moh Power Plant, it was found that the efficiency and ability of employees did not match the mission of power development fund since the employees of power development fund did not understand the scope of work that they had to do.

The employees of power development fund discussed that the welfare of employees or staff of power development was different from that of the officers at Office of Energy Regulatory Commission Regional Office.

Recently, power development fund of Mae Moh Power Plant has not had a manager yet. The person in charge of the power development fund of Mae Moh Power Plant was a manager of the Office of Energy Regulatory Commission Regional Office. Due to the reason, it became the problem for the operation and management of Mae Moh power development fund.

The employees of power development fund suggested that the regulation that ERC deployed to power development fund should be adjusted because the regulation was not applicable.

The employees or staff of power development fund of Mae Moh Power Plant commented that the community projects implemented around the Mae Moh area did not make any development and improvement to society who lived around the operation of Mae Moh Power Plant.

The Recommendations from the Stakeholders who were Sub-district Headmen, Village Headmen, and Residents who lived around the Operation and Management of Power Development Fund of Mae Moh Power Plant

The sub-district headmen and village headmen suggested that the power development fund should summarize and explain the result of the operation of community project to residents and stakeholders in the area because in Mae Moh area there have been a lot of formulated community projects in the area. By reporting the result of the operation of community project, it would decrease the transparency problem within the Mae Moh area because nowadays they received a lot of news about the transparency and corruption problem of the management by which the budget was allocated to formulate community projects. Therefore, reporting the result and progress of the operation of community project would decrease those problems.

The sub-district headmen of Sob Pard area mentioned that there were problems on the regulation that ERC and power development fund required to propose for community project. Some projects needed to get approval document from local organization before doing community project. Sometimes, the process took a long time to get approval document and it affected the process to propose and formulate community project. Without the required document, the residents, or stakeholders could not propose community project. Sometimes when residents proposed community projects to get approval from ERC, they were rejected due to the regulation of ERC. Another problem that residents living around Mae Moh area faced in proposing community projects were the problem of the procurement regulation that the

government deployed which did not provide the opportunity for residents to use the budget on the procurement but authorized local government to manage the budget on procurement. The regulation did not allow residents to undertake procurement, for example, seeking shops by themselves. For the community projects that had budget of more than 300,000 baht that residents proposed for community project and gave authority to local government organization to be responsible, it also faced the problem around the Mae Moh area because the residents could not examine and scrutinize the community project on the operation of the project. They only knew that there was a project in their community but they did not have the opportunity to examine and scrutinize that project. The sub-district headmen and village headmen around the Mae Moh area suggested that the power development fund should report the progress during the formulation of community project and after the end of community project to residents and stakeholders because in the Mae Moh area there were a lot of community projects. Recently, there was also the problem of proposing community project in some area that needed to get approval document by government sector and to get the approval document took a long time. Therefore, the residents could not propose the community project. Some community projects proposed by the residents around the Mae Moh area did not provide the benefit to the area because some project were not suitable to apply and formulate in the Mae Moh area but residents still proposed it. Some community projects seemed to be unsuccessful even when the community projects were finished. The sub-district headmen and village headmen suggested that the power development fund, the Community Development Committee, and Tambon Development Committee should examine and scrutinize those projects.

The residents also suggested that in case the community projects did not get approval from power development fund and authorized person, they wanted power development fund to inform them why the community projects did not get approval and should inform them of any additional, necessary document needed to enable the community projects to get approval.

The residents commented that in some community projects proposed and formulated by local administration, residents in communities did not know about the

existence of community project. Therefore, power development fund should find way to inform about the community project formulated by local administration in the area.

The power development fund of Mae Moh Power Plant provided a lot of benefit to resident who lived around the Mae Moh area. The community around the Mae Moh Power Plant was developed due to the budget allocated by the power development fund to residents to propose community projects. The standard of living of residents around the Mae Moh Power Plant also improved. It also helped increase the income of residents.

The sub-district headmen and village headmen around the Mae Moh area suggested that the ERC and power development fund should provide the opportunity for residents to participate in the community project with the budget of more than 300,000 baht and provided the opportunity to examine and scrutinize the operation of the community project with the budget of more than 300,000 baht or report the progress of community project to residents to perceive about the community project. However, with the regulation that allowed the residents to propose and manage the budget with less than 300,000 baht was good because it provided the opportunity for residents to use the budget to develop the community area through proposing the community project.

As the residents needed to use their own money to formulate community project and then they could disburse money from the power development fund after the community project was formulated, the process for disbursing the money took a long time. The sub-district headmen and village headmen suggested that power development fund might provide budget for residents to formulate community projects. If the power development fund wanted to examine the use of budget, the power development fund might come to examine the community projects.

In the past, the community projects formulated around the Mae Moh area were the community projects that did not contribute to sustainable development and were short-term projects. However, recently, the sub-district headmen and village headmen tried to motivate and encourage residents to propose long-term community projects or

extended projects which could be developed and improved as continuous projects in the next fiscal year.

The sub-district headmen and village headmen suggested that for the selection of public representatives who became the members of the Community Development Committee and Village Development Committee, the ERC should be concerned with the qualifications of the persons who would become members of the Community Development Committee and Village Development Committee about the education background because the people needed to manage the budget to formulate community project. Therefore, the more qualified the public representatives, the more benefit the residents and stakeholder would receive from the power development fund. The power development fund would also be more efficient in budget management.

The sub-district headmen and village headmen of the Mae Moh area suggested that the community projects that resident proposed must be the community project that provided benefit to all communities, not specifically in some areas. The budget that power development fund disbursed to residents around the Mae Moh area should enhance unity among residents in the Mae Moh area. But nowadays the budget disbursed to residents did not enhance unity among the residents and it reduced cooperation among the residents in the area.

The sub-district headmen and village headmen around the Mae Moh area suggested that the power development fund should provide the opportunity for residents to participate in the operation and management of power development fund and the power development fund should be more sincere to the residents and stakeholder. The power development fund should provide the opportunity to all residents to become part of public representatives in the Community Development Committee and Tambon Development Committee. The power development should not choose persons with connection to be part of the public representatives to manage power development fund.

4.2.2 Power Development Fund of Bang Pa Kong Power Plant

4.2.2.1 The Overall Efficiency of Operation and Management Perspective

The power development fund of Bang Pa Kong Power Plant is Category A Fund which has Power Development Fund committee to manage the Fund in each area. The Development Fund committee of Bang Pa Kong Power Plant consists of Community Development Committee (CDC) and Tambon Development Committee (TDC).

The Community Development Committee (CDC) of power development fund of Bang Pa Kong Power Plant has the duties to encourage and support a survey on the impact of power plant operation. This is to help formulate proposals to improve the concerned designated area. In addition, the Community Development Committee (CDC) encourages a survey on the needs of local residents and power plant operation impact to serve as input for formulation of community projects, considers, and approves community projects, as well as monitors the execution of community projects contracts/agreement, disbursement of money for the project implementation, follows up, examines, evaluates the community project performance, and reports it to the OERC.

Tambon Development Committee (TDC) of power development fund of Bang Pa Kong Power Plant has the duties to promote and support the formulation of community projects by organizing public forums at Tambon or village level and then follow up, evaluate, and report the project performance to the CDC.

The employees or staff of power development fund of Bang Pa Kong Power Plant have the duties to follow up and evaluate the community projects around the operation areas of power development fund. The employees or staff cooperate with Office of the Auditor General of Thailand to follow up and evaluate the community projects.

From the interviews, it was found that residents proposed community projects on social development affected by the operation of power plant, for example, road

repair, bridge repair projects affected during the operation of power plant. The repair projects would help improve society and provide benefit to the residents to use those facilities in their daily lives.

The residents or local people around Bang Pa Kong Power Plant have already proposed community projects related to the use of renewable energy and technologies that have minimal impact on the environment, for example, using solar cell to generate electricity which could reduce pollution from the generating electricity by power plant

The power development fund of Bang Pa Kong Power Plant also supported decentralized development to provincial areas for job creation and increased income of local people by formulation of community projects.

The budget to formulate the community project would be divided into two categories; the community project with budget of less than 300,000 baht and the community project with budget of more than 300,000 baht.

For the budget of community projects with less than 300,000 baht, the projects would be operated by local people. The community project supported decentralized development to provincial areas in job creation and increased income included; for example, the training project, the career development project, the establishment of local occupational groups.

For the budget of community projects of more than 300,000 baht, the projects would be operated by the Community Development Committee (CDC), local school, and local government organization.

The community projects included, for example, the training project, the career development project, the establishment of local occupational groups, for example, the occupational group for sewing, the occupation group for the elderly. The creation of occupational groups could help residents in communities to have their own job, the community project to make dish washing soap and fabric softener. After making dish washing soap and fabric softener, the residents could sell the products to earn income

The power development fund of Bang Pa Kong Power Plant supported extensive electrification by supporting people to formulate community projects. The community

projects included, for example; extended electricity for residents and people who lived in remote areas such as around Bangwao area.

On the conclusion of the overall efficiency of operation and management of Power Development Fund of Bang Pa Kong Power Plant, the power development fund supported residents to propose community projects on road repair, bridge repair projects affected during the operation of power plant. Around Bang Pa Kong Power Plant, there was also a community project which used solar cell to generate electricity which could reduce the pollution derived from the generating electricity by power plant. The power development fund supported community projects proposed by residents to create jobs for communities and increase income for communities. The power development fund also supported residents to propose and formulate community project related to extend the electrification project to various localities.

4.2.2.2 The Management Process Perspective

The power development fund of Bang Pa Kong Power Plant has always cooperated and coordinated with ERC and local government organization and reported to Office of the Energy Regulatory Commission on the progress of operation and management. The power development fund of Bang Pa Kong Power Plant has also reported the progress of operation and management of power development fund to residents or local people through website of ERC. The power development fund of Mae Moh Power Plant has also reported the progress of financial report to ERC and related organizations every month.

The power development fund reported the progress of operation and management of power development fund through the annual report and website of power development fund.

The power development fund of Bang Pa Kong Power Plant has supported the participation of residents or local people by allowing them to participate in a public forum at village or community levels to select a villager as representative to be a member of the Community Development Committee (CDC).

The residents or local people had the opportunity to participate in a public forum at village level organized by the CDC or TDC in each designated area in order to

propose community projects. However, from the interviews, it was found that Bang Pa Kong Power Plant area had a problem about the participation of residents or people in public forums. They were not interested in participating in the public forum to propose community projects.

The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information in the annual report.

On the conclusion of management process perspective of Power Development Fund of Bang Pa Kong Power Plant, the power development fund has coordinated with other sectors, for example, ERC, Local Administrative Organization to report the progress of the operation and management of power development fund. The power development fund has reported the progress of the operation and management to residents and related organizations every month and also reported the progress through annual report and website of power development fund. However, around Bang Pa Kong Power Plant, residents were not interested in participating in public forums.

4.2.2.3 The Stakeholder Perspective

From the interviews with the sub-district headmen of Bang Pa Kong, Kao Din, and Bang Wao who lived around Bang Power Plant, it was found that the power development fund organizing the meeting with all of sub-district headmen in designated were about the progress of the operation and management of power development fund of Bang Pa Kong Power Plant and sub-district headmen would communicate with village headmen about the progress. Sometimes, the representative who was the member of Community Development Committee (CDC) would communicate with sub-district headmen about the progress of operation and management and the use of budget. The sub-district headmen also had the opportunity to examine the allocation of the budget that power development disbursed to residents to formulate community project. The power development fund of Bang Pa Kong Power Plant allocated the budget for residents, estimated by the size of each district which was divided into small, medium,

and large sizes. The small size would receive the budget of 600,000 baht, the medium size 700,000 baht, and the large size 800,000 baht.

The sub-district headmen had the opportunity to participate in the operation and management on attending meeting by receiving invitation letter for each meeting that power development fund organized and became advisors of sub-district. Moreover, there was also the opportunity to participate and organize public forums. The sub-district headmen had the duty to scrutinize the proposals of community project by residents before sending them to the Community Development Committee (CDC). Sometimes, sub-district headmen also helped residents to write community project to propose to the Community Development Committee (CDC). When the public forum was organized, the employees of power development fund would attend public forum to advice residents in communities on how to write document to propose community projects.

When the public forum was set up, the power development fund would provide budget to use in public forum, for example, preparing snack and drinks for residents in communities.

From the interviews with sub-district headmen, village headmen and residents, it was found that when public forum was organized, the employees of power development fund would inform about the type of community project which can and cannot be proposed.

From the interviews with the residents around the Bang Pa Kong area, it was found that the sub-district headmen and village headmen provided the opportunity for residents to vote for community projects that they wanted to propose but residents did not have the chance to write document and propose for community project because some residents were uneducated and did not have knowledge on how to write and propose community project. In each community, residents would select a person with qualification and knowledge to be their representative to write document to propose community project.

From the interviews with residents, it was also found that in the past residents used to write document to propose community project by themselves. But the projects

were rejected by power development fund and authorized person. Therefore, recently the community representatives were persons who wrote document to propose community project. The community projects written and proposed by community representatives would be checked by sub-district headmen and village headmen about the detail inside document before sending to power development fund to get an approval. Nowadays, community projects written and proposed by community representatives never got rejection from power development fund. All community projects got approval from power development fund and authorized person. Around the Bang Pa Kong area, there was no problem in proposing community project because all community projects proposed by community representatives or residents got approval right within the timeframe that power development fund set up for communities. Most community projects around the Bang Pa Kong area were about temple and school projects.

The sub-district headmen and village headmen suggested that residents should be persons who wrote and proposed community projects. The residents should have experience to write and propose by themselves. But due to residents' lack of knowledge, they preferred to let community representatives write and propose community projects for them.

From the interviews with sub-district headmen, village headmen, and residents, it was found that the budget that power development fund allocated for formulated communities around Bang Pa Kong area was enough for communities to propose for community projects.

From the interviews with the sub-district headmen and village headmen, it was found that in case the community projects which were similar with the project conducted by the government sector and other related organization, the sub-district headmen and village headmen would guide residents to change to other community projects which were not similar to projects of government sector and other related organizations.

Around the Bang Pa Kong area, there was the problem of doing and formulating community projects which needed to use land for community project as around Bang Pa Kong, there was no public area.

From the interviews with residents, it was found that when they proposed community project to get approval from power development fund and that project was similar to another project, the power development would recommend the person who proposed the community project to combine two projects to be only one big project.

From the interviews with the sub-district headmen, village headmen, and residents, it was found that when community projects were formulated, ERC would assign persons to come into area to examine and scrutinize the existing community projects.

On the conclusion of stakeholder perspective of Power Development Fund of Bang Pa Kong Power Plant, the stakeholders had the opportunity to participate in the operation and management of power development fund through the public forum that power development fund organized for residents to propose and vote for community projects in communities. Sometimes, the sub-district headmen and village headmen who were groups of stakeholders in the area would be representatives from the communities to attend public forum so as to be persons to propose and vote for community projects. The stakeholders were able to examine and scrutinize the operation and management of power development fund by the organizing meeting that sub-district headmen and village headmen who were representatives of residents attended the meeting. For the perception on how to write and propose of community projects, the sub-district headmen and village headmen who were representatives of stakeholders would receive invitation letter from the power development fund to participate in the meeting and learn how to write and propose community projects. After the meeting, the sub-district headmen and village headmen would train residents how to write and propose community projects.

4.2.2.4 The Learning and Development Perspective

From the interviews to the employees or staff of power development fund of Bang Pa Kong Power Plant, it was found that they received the training and knowledge at least once a year. Most of the trainings were knowledge about accounting and finance.

On the conclusion of learning and development perspective of Power Development Fund of Bang Pa Kong Power Plant, the power development fund supported and improved knowledge of employees or staff at least once a year. Most trainings given were about accounting and financing.

4.2.2.5 The Environment Perspective

From the interview with manager of power development fund of Bang Pa Kong Power Plant, it was found that residents proposed community projects which placed importance on environmental management as the following examples:

Residents proposed community projects which placed importance on environmental management, for example, the trips to royal projects to study and learn about the significance of environment.

Residents also proposed community projects which provided treatment and remedies affected by power plant on environment, for example, the learning project how to make and use EM Ball which could be used in water sources and provide treatment and remedy to the affected by the operation of power plant. By using EM ball, it would help reduce pollution and provide treatment of water resources around the operation of power plant.

Residents also proposed community projects which solved pollution problem, for example, the development project on the efficiency of water system derived from the pollution which residents could use good quality water to use in agriculture.

Residents proposed community projects which created activities to save and protect natural resources, for example, the project for young generation to participate in the environment camp to protect natural resources in the community. The young generation would participate in activities to help save and protect natural resources.

Residents proposed community projects which provided the opportunity to participate in activities which helped save and protect natural resources, for example, the surveillance project to save and protect natural resources which provided the opportunity to become a guard to take care and save natural resources. The residents who lived in the communities would have the opportunity to participate in activities and could help save and protect natural resources.

On the conclusion of environment perspective of Power Development Fund of Bang Pa Kong Power Plant, residents proposed community projects on the significance of environmental management, for example, the trip to royal projects to study and learn about the significance of environment, the community project on how to make and use EM Ball which could be used in water sources and provide treatment and remedy to the environment affected by the operation of power plant, the project for young generation to participate in the environment camp to protect natural resources in the community.

4.2.2.6 The Social Perspective

From the interview with manager of power development fund of Bang Pa Kong Power Plant, it was found the following:

The residents proposed community projects which contributed to social rehabilitation affected by the operation of power plant, for example, the purchasing project of water filter for communities to consume because around the operation of power plant, there was wastewater. Therefore, the water filter would help improve quality of society and communities.

The job creation under the support of power development fund of Bang Pa Kong Power Plant came from the formulation of community projects by residents or local people in the area. The power development fund would support the budget to formulate community projects, for example, the training project for job creation on dish washing soap and fabric softener, making gifts and flowers for funeral use, the purchasing projects to buy pumping pipe for use in fish farming and residents could sell the fish to earn income, as well as the production of water project for selling in community during special events, for example, the temple event.

Most community projects proposed by residents were continuous projects, for example, the crab bank and fish home project for breeding and selling to earn income for residents.

The power development fund of Bang Pa Kong Power Plant has treated the stakeholders or local people who lived around the operation of the power plant through the support of how to formulate community projects, for example, supporting community projects for funerals for local people with 2, 000 baht per person, scholarship project to local students with good education performance, and medical check-up.

The support and improvement of the quality of life in society under the power development fund of Bang Pa Kong Power Plant came from the formulation of community project by residents or local people in the area. The power development fund would support the budget to formulate community project, for example, the clean water service project for community, the purchasing project for fitness and training equipment for community.

The community projects supported by power development fund and related to social development were about temple reconstruction, construction of school, and development of public utility system, for example, water.

The power development fund of Bang Pa Kong Power Plant supported and cooperated with community in the traditional activities, sport day and also traditional New Year's event (Song Kran Festival).Most activities were supported by the power development fund from the formulation of community project by residents or local people in the area.

The development of health care and medical service have been carried out due to the effects from the operation of power plant through the formulation of community projects by residents or people in the area. The power development fund would support the budget to formulate community projects, for example, the purchasing project for medical supplies and renovation or construction of medical building.

On the conclusion of social perspective of Power Development Fund Bang Pa Kong Power Plant, residents proposed community projects about purchasing water

filter for communities to consume, job creation project, social cooperation community project, and health care community project.

The Problems and Obstacles of the Operation and Management of Power Development Fund of Bang Pa Kong Power Plant

The manager of power development fund of Bang Pa Kong Power Plant told that there was problem of the inadequate cooperation and coordination between a public sector and a government sector leading to the problem to formulate community projects.

The community projects around Bang Pa Kong area mostly were short-term projects. After the local residents received budget to formulate community project, they used the budget to develop community project until the end of the project. They did not continue or develop their projects into long-term projects.

The manager of power development fund of Bang Pa Kong Power Plant said that some community projects proposed by residents and stakeholders were less efficient and less in quality which could not help develop community to the maximum. Moreover, there were problems relating to abilities of local people to use the budget to formulate community projects, leading to failure and less efficiency.

The manager of power development fund also said that the welfare of employees or staff of power development was different from that of the officers at Office of Energy Regulation Commission Regional Office.

The interviewed persons suggested to the power development fund to have more organization to support the budget to the residents in order to formulate community projects. But under regulation of power development fund, the power development fund was not allowed to do community project by themselves. Therefore, it was impossible for power development fund to operate and formulate community project.

The recommendations from the stakeholders who were sub-district headmen, village headmen, and residents who lived around the operation and management of power development fund of Bang Pa Kong Power Plant

The sub-district headmen and village headmen suggested that the Energy Regulatory Commission Regional Office in designated area should examine and investigate the use of the budget of power development fund in designated area distributed to residents to formulate community projects.

The sub-district headmen said that the problem of power development fund of Bang Pa Kong Power Plant came from the authorized person who did not allow residents to have the opportunity to propose for community projects and the problem that the Energy Regulatory Commission deployed policy to determine proportion of big community projects and small community projects with 70%/30%. With that regulation, it affected small community which had more sub-village. The residents would not have the opportunity to propose for small community projects because it was limited at 30%. The big community project that gave the authority to local government organization or Sub-district Administration to propose and formulate community project should be adjusted and the proportion should be changed from 70%/30% to 50%/50% or 60%/-40% which provided more opportunity for the residents to propose the community project.

The manager at the Office of Energy Regulatory Commission Regional Office and the manager of Power Development Fund never came to examine the community project in designated area around the operation of Bang Pa Kong Power Plant. The sub-district headmen wanted Energy Regulatory Commission, Office of Energy Regulation Commission Regional Office, and Power Development Fund to come and listen to what residents and community wanted to develop in the area. If Energy Regulatory Commission, Office of Energy Regulation Commission Regional Office, and Power Development Fund came to the residents' area, the residents could ask about what they could do or could not do for community project. Moreover, they should come to examine and scrutinize the community project more often.

The sub-district headmen suggested that the power development fund should hire employees or staff who had knowledge background about engineering and architecture which could help and advice residents on construction projects.

When power development fund organized public forum which provided the opportunity for residents to vote and propose for community project, there was no authorized person, for example, Energy Regulatory Commission, Office of Energy Regulation Commission Regional Office, and Manager of Power Development Fund came to participate in the public forum. Only the employees from power development fund who came to manage in general the public forum. The sub-district headmen suggested that the authorized person who had the authority to approve and could guide community project proposals should participate in public forum as well.

The problem of the process started from organizing public forum, proposing propose community projects, until sending them to Community Development Committee (CDC) to scrutinize. The process was limited to within 30 days. But during each process, in some community project, there was need to contact other related organizations. For example, if water system needed to be developed, the residents needed to get approval from irrigation authority which took a long time in process. Therefore, the process on propose community project could not finish within 30 days.

The sub- district headmen also suggested that the process to approve community project should be adjusted. Because recently the process took a long time and it should be adjusted and time should be reduced to approve community projects.

The sub-district headmen suggested that the Community Development Committee (CDC) and Power Development Fund should guide and help residents on how to write and propose community projects which helped reduce the rejection problem from the Community Development Committee (CDC).

The residents suggested that when public forum was organized, power development fund should guide residents on what kind of community project they could write and propose or not. The guide from power development fund would help solve rejection problem of community project by power development fund and authorized person.

The sub-district headmen suggested that around the area facing problem of the knowledge and ability of authorized person, for example, Community Development Committee (CDC) who had authority to scrutinize the proposed documents of residents on community project. The sub-district headmen commented that Community Development Committee (CDC) who were public representatives did not have knowledge and ability to scrutinize the proposed documents of community projects.

The sub-district headmen wanted the Energy Regulatory Commission to adjust regulation and policy deployed in the area. Because each area had different geography, life style of residents and stakeholders, therefore, sometimes it was hard to adapt the same regulation and policy that applied to all power development fund.

4.2.3 Power Development Fund of Wang Noi Power Plant

4.2.3.1 The Overall Efficiency of Operation and Management Perspective

The power development fund of Wang Noi Power Plant is Category A Fund which has Power Development Fund committee to manage the Fund in each area. The Development Fund committee of Wang Noi Power Plant consists of Community Development Committee (CDC) and Tambon Development Committee (TDC).

The Community Development Committee (CDC) of power development fund of Wang Noi Power Plant has the duties to encourage and support a survey on the impact of power plant operation to help formulate proposals to improve the concerned designed area. The CDC has encouraged a survey on the needs of local residents and power plant operation impact to serve as input for the formulation of community projects, consider and approve community projects, as well as monitor the execution of community project contracts/agreements, and disburse money for the project.

Tambon Development Committee (TDC) of power development fund of Wang Noi Power Plant has the duties to promote and support the formulation of community projects, by organizing public forums at Tambon or village level, and then follow up, evaluate, and report the community project performance to the CDC.

The budget to formulate the community project will be divided into two categories namely: the community projects with budget of less than 300,000 baht and the community projects with budget of more than 300,000 baht.

For the budget of community projects with less than 300,000 baht, the projects will be operated by local people whereas for those with the budget of more than 300,000 baht, the projects will be operated by local government and organization.

From the interviews, the interviewed persons said that the power development fund of Wang Noi Power Plant used administration cost fund in case of emergency to remedy or alleviate the damage caused by power plant operation. By using this budget, it did not need to organize public forums. But it had to be approved by the Community Development Committee (CDC) of power development fund of Wang Noi Power Plant.

The power development fund of Wang Noi Power Plant requested the approval from the ERC to operate community projects with budget of more than 300,000 baht, due to the fact that in the area, local government organization had less attention to carry out the project. In order to do this, power development fund Wang Noi Power Plant needed to report to ERC about the situation of the community project. The community projects that the power development fund of Wang Noi Power Plant operated were related to the procurement project.

For the social development affected by the operation of power plant, the residents proposed community projects, for example, the water filter purchasing project for community's clean drinking water. The project would help residents to have clean water in daily use. To have clear water for consumption, the quality of life of residents would improve and it would also contribute to social development.

The residents around the Wang Noi area proposed community projects which supported the use of renewable energy and technologies that had minimal impact on the environment, for example, the paddle wheel Aerator purchasing project, using solar energy which helped solve wastewater problem in the community.

The power development fund of Wang Noi Power Plant has supported the formulation of community project around the Wang Noi area, for example, setting up occupational groups for mushroom farming, making desserts, chili sauce, fish, chicken

and frog farming which could create job and increase income for residents in the Wang Noi area and the buyer would come to buy those products at home.

The residents have also proposed community projects on the extension of electrification to various localities. Because the process to extend electrification required contact with Province Electricity Authority (PEA) to get approval. After getting approval, residents needed to bring the documents to power development fund in the area so that power development fund would approve the document once again. The sub-district headmen and village headmen recommended that the power development fund of Wang Noi power plant be in charge of doing extension of electrification for community.

On the conclusion of the overall efficiency of operation and management perspective of Power Development Fund Wang Noi Power Plant, the power development fund supported residents to propose community projects, for example, purchasing water filter for community to drink clean water, purchasing a paddle wheel aerator by using solar energy which helped solve wastewater problem in the communities, the establishment of occupational groups to grow mushrooms, the community projects which create income for communities, and community projects related to extensive electrification at Wang Noi district. However, the residents recommended that the process of the extensive electrification took a long period of time and needed to be adjusted.

4.2.3.2 The Management Process Perspective

The power development fund of Wang Noi Power Plant has cooperated and coordinated with ERC and local government organization has reported to Office of the Energy Regulatory Commission on the progress of operation and management of power development fund and the progress of community projects around the Wang Noi area. The power development fund of Wang Noi Power Plant has reported the results of the community projects approved by the Community Development Committee (CDC), Tambon Development Committee (TDC), the sub-district headman, village headmen and local government organization.

The power development fund of Wang Noi Power Plant reported the progress of the operation and management of power development fund to residents and local people through the TDC meeting twice a year.

The power development fund of Wang Noi Power Plant has installed information board and a website to inform about the progress of the operation and management of power development fund.

The power development fund supported the participation of residents in the operation and management of power development fund by organizing public forums at village or community level in order to propose community projects.

The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information board and power development fund website.

On the conclusion of the management process perspective of Power Development Fund Wang Noi Power Plant, the power development fund has coordinated with other sectors, for example, ERC, Local Administrative Organization to report the progress of operation and management of power development fund to residents and related organizations two times a year. The power development fund had channels to report the progress of operation and management of power development fund through information board and website. The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information board and power development fund website which resident could examine and scrutinize the existing community projects and the use of the budget in each power development fund in designated area.

4.2.3.3 The Stakeholder Perspective

The researcher also interviewed the sub-district headmen and village headmen of Wang Noi, Wang Chula, and Khao Ngam sub-districts who lived around Wang Noi Power Plant.

From the interviews with sub-district and village headmen of Wang Noi, Wang Chula, and Kao Ngam sub-districts, it was found that the power development fund of Wang Noi Power Plant has reported the amount of budget distributed for the

community's use to formulate projects and the progress of the operation and management of power development fund at least once a month to residents.

The sub-district headmen and village headmen had the opportunity to examine and scrutinize the budget that the ERC and the power development fund Wang Noi power plant have allocated to the community and the use of budget for formulating community projects in the area by attending the meeting organized by power development fund. The budget allocated to each community was reasonable.

The sub-district headmen and village headmen around Wang Noi Power Plant had the opportunity to participate in the operation and management of power development fund via in the meeting that power development fund had organized for teaching on how to write and propose community projects. After the meeting, the sub-district headmen and village headmen would inform residents on how to write and propose the community projects.

The sub-district headmen and village headman around Wang Noi Power Plant also had the opportunity to propose community projects, for example, the community projects to buy necessary equipment such as chairs, tables, etc. For use in every household around the area, job creation community project, voice broadcasting project, CCTV purchasing project, mushroom farming project, dish washing soap project, etc. The conception of proposing community projects derived from the gathering among the residents in the area about what needed to be improved and developed in the area, what were the problems that the area was facing and needed to be solved, and it came out with the project that they proposed.

From the interviews with the residents around the Wang Noi area, it was found that they let the sub-district headmen and village headmen wrote document and proposed community projects for them. Because some of them were uneducated and did not have knowledge to write and propose community projects. When public forum was organized, they had a chance to vote for community projects that they wanted to formulate in community. All community projects that they voted got approval from the power development fund and authorized person.

If community projects sent to power development fund faced the problem of the lack of necessary documents, the power development fund would return the documents to the persons who proposed community projects. The power development would return with the list of required documents. The persons who proposed community projects should prepare the documents and return them to power development fund to get approval again.

From the interviews with the residents, it was found that the community project that they vote were about the projects that provided benefit and contribute to development in the community , for example, road repair project, durable articles purchasing project, water filter purchasing project for consumption in the community, occupational group project. The residents said that some community projects came from the idea of sub-district headmen and village headmen because the sub-district headmen and village headmen perceived about problems that occurred in communities. Therefore, the sub-district headmen and village headmen could propose community projects that responded to the needs of the residents in the community.

After the sub-district headmen and village headmen wrote and proposed community projects, they would inform to residents by distributing the proposal document, the process, and the progress of community projects.

For community projects formulated in the area, the residents would receive detail and the existence of community projects by the information provided by the sub-district headmen and village headmen.

The residents suggested when the public forum was organized, power development fund should support food, snack, and drinks to motivate the residents to participate in attending public forum. Because sometimes when public forum was organized, residents were less interested to participate in public forum.

From the interviews with the sub-district headmen and village headman, they suggested that residents in communities should write and propose community projects. However, with the process of writing document and the knowledge of residents, it was difficult for them to write. The sub-district headmen and village headmen thought that if the resident wrote and proposed community projects by themselves, the community

projects would be rejected by the person with authorization to approve community projects.

From the interviews with the sub-district headmen, village headman, and residents who lived around the Wang Noi area, they said that the budget that power development fund allocated to communities to formulated community projects were enough to distribute into each community. The sub-district headmen, village headman, and residents formed an agreement to spare the budget received from the allocation of power development fund to use in temple and school development.

The sub-district headmen, village headman, and residents recommended that power development fund should decrease the process to propose community projects. Because some community projects proposed by the residents needed to get the approval document from local organization, for example, the process to get approval document from PEA on electrification extensive project. Therefore, they needed power development fund to reduce the process which saves time for the residents to propose community projects. The limit of time of the process to propose community projects until getting approval from power development fund and authorized person would pose problem for the persons who proposed community projects. Some of them could not send document and propose community projects on time due to power development fund requirement.

From the interviews with the residents who had the opportunity to propose community projects, they said that sometimes they faced the problem of proposing community projects with comment received from power development fund that the community projects that they proposed were not valuable for the development of the communities which the residents needed to change to another community project.

The sub-district headmen, village headman, and residents recommended that power development fund should formulate community project for communities rather than giving budget for communities to propose for community projects.

On the conclusion of the stakeholder perspective of Power Development Fund Wang Noi Power Plant, the stakeholders had the opportunity to participate in the operation of power development fund by attending a meeting that power development

fund invited the stakeholders so that they were informed of the allocation of the budget and also the participation in the meeting about how to write and propose community projects. The stakeholders had the opportunity to examine and scrutinize the operation of power development fund on the budget allocated by the ERC allocates to formulate community projects by receiving invitation letter from the power development fund to participate in the meeting. The stakeholders had the opportunity in the meeting organized by power development fund organized to learn how to write and propose for community projects. After attending the meeting, the stakeholders would be able to write document and propose community projects. The stakeholders who had knowledge about how to write and propose community projects would be able to teach to other stakeholders who did not attend the meeting.

4.2.3.4 The Learning and Development Perspective

The power development fund of Wang Noi Power Plant supported training for employees and staff about accounting, financing, including training about regulation and policy of procurement. From the interviews with the employees or staff of power development fund of Wang Noi Power Plant, it was found that they received the training and knowledge at least once a year.

On the conclusion of the learning and development perspective of Power Development Fund Wang Noi Power Plant, the power development fund provided support and improved knowledge of employees or staff of power development fund at least once a year about accounting, financing, including regulations and policy of procurement.

4.2.3.5 The Environment perspective

From the interview with the manager of power development fund of Wang Noi Power Plant, it was found the following:

The residents proposed community projects which placed importance on the environment, for example, the study trip to royal projects about the environment which

could be adapted in the Wang Noi community area. The study trip could raise concern of the residents in the area on the significance of environment.

The residents proposed community project which provided treatment and remedy affected by the operation of power plant, for example, canal cleaning project affected by the operation of power plant. The project benefited the communities to have clean water and clean canal for use in daily life.

The residents proposed community projects which solved the pollution problem, for example, canal cleaning project to solve the wastewater problem affected by the power plant. This community projects proposed by the residents could solve pollution problem affecting water resource around the Wang Noi area.

The residents proposed community projects which created activities for residents in area to save and protect natural resources, for example, the weed dredging project which provided the opportunity for the community to reduce and protect the natural resource. Because weed would create problem to natural resource around the operation of power development fund.

The residents proposed community projects which provided activities for residents in the area to participate, for example, the lawn mower purchasing project which residents could use to protect natural resources by using the lawn mower to cut grass and remove weeds affecting the natural resources. The residents would have opportunity to use the equipment to protect and save natural resources around community area.

On the conclusion of the environment perspective of Power Development Fund Wang Noi Power Plant, the residents proposed community projects, for example, the study trip to the royal project about the environmental management. The acquired knowledge could be applied to the Wang Noi community area, the canal cleaning project affected by the operation of power plant, the weed dredging weed project which provided the opportunity for the community to reduce and protect natural resources.

4.2.3.6 The Social Perspective

From the interview with manager of power development fund of Wang Noi power plant on social perspective, it was found the following:

The residents proposed community project which involved social rehabilitation affected by the operation of power plant, for example, road repair in front of Wang Noi Power Plant because the road was damaged by the transport of vehicles and equipment related to power plant.

The job creation under the support of the power development fund of Wang Noi Power Plant came from the formulation of community project by residents or local people in the area. The community projects for job creation around Wang Noi area were as follows: the establishment of occupational group to grow mushrooms which could create job for residents or local people from selling mushrooms, the occupational group to make Thai sweets, chili sauce, chicken farming for selling in the market

The support and improvement of quality of life in society under the power development fund of Wang Noi Power Plant came from the formulation of community projects by residents or local people in the area, for example, the procurement of sphygmomanometer and blood glucose test meter for health promoting hospital and village health volunteer to use, the recruitment projects for security around the Wang Noi area.

The social cooperation from the power development fund of Wang Noi Power Plant came from the formulation of community project by residents or local people in the area. The power development fund would support the budget to formulate community projects, for example, the community project for Thailand traditional New Year's day (Songkran Festival).

Around the Wang Noi area, the residents also proposed the community projects for purchasing voice broadcast which was used for communicating among the residents around the area.

The development of health care and medical service have been undertaken due to the impact from the operation of power plant under the support of by power development fund of Wang Noi Power Plant by formulating community projects by residents or local people in the area. The power development fund would support the

budget to formulate community projects. Most community projects supported health promoting hospital, for example, vehicles for patients, dental checkup equipment.

On the conclusion of the social perspective of Power Development Fund Wang Noi Power Plant, residents proposed community projects related to social rehabilitation affected by the power plant; for example, road repair in front of Wang Noi Power Plant, job creation, social cooperation, and health care and medical support services.

The Problems and Obstacles of the Operation and Management of Power Development Fund of Wang Noi Power Plant

From the interviews, it was found that the power development fund of Wang Noi Power Plant did not disburse money to residents and local people to formulate community projects until the power development fund received documents of approval to formulate community project from ERC or Community Development Committee.

The manager of power development fund Wang Noi Power Plant suggested that the policy framework should be revised because the policy framework was not related and not covered with the operation of power development fund of Wang Noi Power Plant.

The power development fund of Wang Noi Power Plant faced the problems of the cooperation and coordination between local people and the government officers leading to supporting problems to formulate community projects.

The manager of power development fund of Wang Noi Power Plant said that the community projects proposed by the residents and local people did not have diversity. Some community projects were operated by some groups of people so there was transparency problem. Because to propose the community project, all residents and stakeholders must have the opportunity to propose community projects.

From the interviews, it was also found that, the power development fund of Wang Noi Power Plant faced the participation problem of residents and local people in Wang Noi area on the formulation of community project.

Around Wang Noi area, there was also the problem of the completion of community project when employees of power development fund followed up and evaluated community projects.

The manager of power development fund of Wang Noi Power Plant said that the power development fund faced the problem of the experience and the efficiency of employees. Because some employees or staff of power development fund were new graduates from university. Therefore, they did not have work experience and had less efficiency, which affected the operation of power development fund.

The recommendations from the stakeholders who were sub-district headmen, village headmen, and residents who lived around the operation and management of power development fund of Wang Noi Power Plant

The sub-district headmen and village headmen said that most community projects established around the Wang Noi area were not continuous projects so they were not long-term projects. When the next fiscal year's starts, residents would propose another community projects.

Each community project in the area should be examined and scrutinized that it did not overlap with SAO projects in the area. Because if community projects needed to be formulated in government area, the residents needed to receive acceptation letter from SAO on doing community project in the government area, for example, canal digging and canal cleaning projects. Therefore, to reduce the complication of formulating community projects, the residents preferred to propose community projects around their area.

The residents around the Wang Noi area suggested that power development fund should have budget for residents in communities who wrote and proposed community projects.

The residents suggested that for community projects which needed to hire contractor for doing project, for example, the construction project, the residents suggested that power development fund should be middle man to hire contractor for residents on doing community projects. Because the residents might not have

experience in finding contractor and did not know any contractor with experience in related field.

The residents also suggested that they wanted power development fund to have budget which was allocated directly to school for use in development and undertake construction for school.

Around the Wang Noi area, there was also noise problem from the operation of Wang Noi power plant. However, residents in community areas did not propose and formulate community projects which could solve the problem from the impact of the operation of Wang Noi power plant.

The sub-district headmen and village headmen questioned the reason why the residents needed to use their own money to formulate community projects. After the power development fund disbursed money to them later, but why power development fund did not give money or budget for them to formulate community project. Sometime the residents did not have enough money or budget to pay or advance to formulate for community projects. The sub-district headmen and village headmen recommended that the power development fund might use their budget to formulate community project for the community.

The sub-district headmen and village headmen suggested that if residents used their own money to purchase and procure with contractor to do community projects, whether it was possible to pay only 50% of the total cost during the project and another 50% after the end of the project. Because the residents did not have enough money to pay 100% at one time.

On the problem of gathering professional group, with the regulation of ERC, the professional group must gather in one location and could not be separated into another location. The power development fund was concerned that if community projects were carried out in different location, it might not be community projects but private community projects. The professional group in one location would create cooperation among communities. Due to the problem, the residents would not like to propose community projects.

For less budget than 300,000 baht community projects, they would be operated by local people whereas for more budget than 300,000 baht, the project would be operated by local government organization. The sub-district headmen and village headmen suggested that the budget for local people to propose community projects should increase to 500,000 baht. Because in doing some projects, the budget of 300,000 baht was not enough to formulate community projects.

The sub-district headmen and village headmen also faced the problem of the delay of the operation and management of power development fund of Wang Noi Power Plant. However, they understood the process of power development fund that the approval from authorized person to propose and formulate community project required many processes from the ERC.

The delay of the procurement process was one of the problems that residents faced. Some community projects proposed by residents proposed took a year to get approval. The reasons came from a lot of processes to propose community projects deployed under the regulations of the ERC.

For budget of more than 300,000 baht community project operated by local government and SAO, the sub-district headmen and village headmen suggested that the ERC and power development fund should give the opportunity to residents in the area to be persons who could examine and scrutinize the community projects. Because the residents were the group of people who received benefit from the formulation of community projects. Recently for community projects with the budget of more than 300,000 baht and operated by local government and SAO, residents did not have the opportunity to examine and scrutinize accountability and transparency of the community projectи. The sub-district headmen and village headmen suggested that the ERC should refocus on the regulation that provided the opportunity for residents in the area to examine and scrutinize the operation of community projects.

On the conclusion of power development fund category A in six perspectives for the operation and management, power development fund in category A supported residents to propose community projects which could increase the quality of life of residents, for example, occupational groups which created job and generated income

for residents in community. The power development fund in category A has coordinated with related organizations and all stakeholders for reporting the progress on the operation and management. Moreover, power development fund also supported the participation of residents in attending public forum to propose and vote for community projects. The power development fund also provided the opportunity to all stakeholders to receive information about the operation and management of power development fund and all stakeholders had the opportunity to participate in the public forum organized by power development fund and all stakeholders also had the opportunity to examine and scrutinize the performance of power development fund. The power development fund in category A provided the opportunity to employees who worked for power development fund to improve knowledge and skills necessary to apply to their duties, for example, the knowledge on accounting, financing, and procurement. The power development fund in category A supported and allocated budget to residents to propose community projects related to environmental projects and social projects.

4.3 The Operation and Management of Power Development Fund Category B

4.3.1 Power Development Fund of North Bangkok Power Plant

4.3.1.1 The Overall Efficiency of Operation and Management Perspective

The number of projects that communities proposed under the support of power development fund of North Bangkok Power Plant was about 200 projects a year.

The power development fund of North Bangkok Power Plant had urgent budget for administration in power development fund namely (1) as the Fund administration cost; (2) as a reserve in case of emergency to remedy or alleviate, in the first instance, damage caused by power plant operation; and (3) as subsidies for development or rehabilitation of localities affected by power plant operation but for which the allocated money from the fund was insufficient for such development or rehabilitation under the annual budget approved by the ERC.

The power development fund of North Bangkok Power Plant had budget to support and organize public forums, for example, budget to provide coffee break to motivate residents or people to participate in public forums. The budget that power development fund provided for community was 20,000 baht per month. After finishing public forum, residents or people could bring slip of the expense for organizing public forums to disburse money from power development fund.

The power development fund of North Bangkok Power Plant also received petition and addressed the problems in the first instance and report the matters to the Community Development Committees. The power development fund developed petition form for residents or people to fill in on what they wanted, who they wanted to petition and what were the impact from the petition.

The power development fund of North Bangkok Power Plant launched projects to develop and to rehabilitate community under the approval of Community Development Committee. The community project that power development fund of North Bangkok supported was the scholarship project for local students who lived around the North Bangkok Power Plant. The scholarship would support the students' education from elementary school until B.A. degrees.

The residents who lived around North Bangkok Power Plant proposed community projects which developed society affected by the operation of power plant, for example, the temple restoration project and school renovation affected by the operation of power plant. The school and temple were affected by the operation of power plant, for example, the emission of pollution affects the condition of temple and school. Therefore, with temple restoration and school renovation projects, it would help contribute to social development affected by the operation of power plant.

The power development fund did not support community projects proposed by residents that related to the use of renewable energy project. But power development fund organized the field trips for residents who lived near power plant to visit royal projects to study about the renewable energy projects.

The power development fund of North Bangkok Power Plant gave support to provincial areas by job creation and increased income through the formulation of

community project; find experts to train and provide knowledge on making bags, hats. Afterwards, they could sell those products to a local market.

The community projects that created job and increased income around the area of North Bangkok Power Plant, power development fund not only supported job creation but also improved quality of life of people, for example, CCTV project.

The power development fund of North Bangkok Power Plant supported the extensive electrification through the formulation community project by residents and people around North Bangkok Power Plant. The community projects included, for example, setting up the light or electric light in some community area and those electric lights are energy-saving equipment, for example, in Bang Ao district.

On the conclusion of the overall efficiency of operation and management perspective of Power Development Fund North Bangkok Power Plant, the power development fund supported residents to propose community projects which helped mitigate impact from the operation of power plant, for example, the temple restoration and school renovation projects affected by the operation of power plant. However, around North Bangkok Power Plant area there was no community project on the use of renewable energy. The power development fund supported residents to create job, generated revenue and for communities from community projects, for example, the community projects to find experts to train and provide knowledge on making bags and hats.The power development fund also supported residents to propose community projects related to extensive electrification by setting up the lights or electric lights in some communities area and those electric light are energy-saving equipment.

4.3.1.2 The Management Process Perspective

The power development fund coordinated with other sectors, for example ERC, Local Administrative Organization to report the progress of the operation and management.

The power development fund of North Bangkok Power Plant always reported the progress of operation and management of power development fund and also reported to the residents or people who lived nearby power plant once every three months. The people' sector representatives who were members of the Power

Development Fund Committee would distribute the progress of operation and management to local communities.

The power development fund of North Bangkok Power Plant managed budget in order to plan the allocation to local communities in each year and the budget had been used to support and distribute to local resident by doing community projects.

The power development fund had channels to report the progress of operation and management of power development fund through the website of power development fund and through the meeting organized by the power development fund which provided the opportunity for sub-district headmen and village headmen to participate in the meeting.

The power development fund supported the participation of residents in the operation and management of power development fund by organizing public forums for residents to propose and vote for community projects.

The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency and accountability of power development fund through the information on website and annual report of power development fund.

On the conclusion of the management process perspective of Power Development Fund North Bangkok Power Plant, the power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization by reporting the progress of the operation and management, the power development fund reported the progress of the operation and management to residents and related organization once every three months. The channels to report the progress of operation and management of power development fund were through the website of power development fund and through the meeting organized by the power development fund which provided the opportunity for sub-district headmen and village headmen to participate in the meeting. The power development fund supported the participation of residents in the operation and management of power development fund by organizing public forums for residents to propose and vote for community projects. Not only power development fund provided the opportunity for residents to participate in public forum, but residents or stakeholders could also scrutinize and examine the transparency

and accountability of power development fund through the information on website and annual report of power development fund.

4.3.1.3 The Stakeholder Perspective

From the interviews with the sub-district of Bang Pai and Bang Sri Thong area, it was found that the power development fund of North Bangkok Power Plant reported the amount of budget distributed to use to community to formulate projects by inviting the sub-district headmen and village headmen around North Bangkok Power Plant area to attend the meeting and power development fund informed about the budget to formulate community project and the progress of community project in fiscal year. The sub-district headmen and village headmen would be able to examine and scrutinize the operation and management of power development fund. After the meeting, the sub-district headmen and village headmen would inform the residents about information that they received to formulate community project and the process of using budget in a fiscal year.

Before organizing public forum, the sub-district headmen and village headmen would inform the residents to think about what they wanted to do and propose for community project in a fiscal year and the residents could propose and vote for community project at the public forum. The sub-district headmen and village headmen would organize meeting with residents in communities to discuss what residents wanted to propose for community projects. In the meeting, the sub-district headmen would recommend and suggest residents to propose for big community projects which provided benefit to the whole communities rather than proposed for small community projects which provided benefit in some communities. However, the sub-district headmen would provide the opportunity for residents to write and propose community projects that they wanted.

The sub-district headmen and village headmen around North Bangkok Power Plant area had the opportunity to teach residents on how to write to propose the community project and also guide them on how to write the document to propose community projects.

Before organizing the public forum, the sub-district headmen and village headmen would cooperate with local organization in the area to inform about the date and location of public forum organized by power development fund. Each month, the sub-district headmen and village headmen would have small meeting with residents. Therefore, the sub-district headmen and village headmen would use the meeting as a channel to inform about the public forum.

From the interviews with the residents who live around North Bangkok Power Plant, it was found that when they wanted to write and propose community projects, the sub-district headmen and village headmen would advise and teach how to write document to propose community projects. From the interviews, it was found that the sub-district headmen would provide the opportunity for residents to write and propose community projects by themselves. The residents who lived around North Bangkok Power Plant could write and propose community projects and the sub-district headmen would not intervene in proposing community projects of residents.

For the community projects proposed by residents to get approval from the authorized person, all community projects that got approval or even some community project were returned to the residents for adjustment or addition of necessary document. But when residents sent the document back, the community projects got approval.

From the interviews with the sub-district headmen and assistant sub-district headmen, it was found that when the public forum was organized, the representatives from school, health promoting hospitals around North Bangkok Power Plant also attended public forum.

The Community Development Committee (CDC) and Tambon Development Committee (TDC) who were selected to be the community representatives had experienced persons, for example, retired officials who wanted to help their communities. Therefore, they came to work and they were selected to the Community Development Committee (CDC) and Tambon Development Committee (TDC). The Community Development Committee (CDC) and Tambon Development Committee (TDC) had good relationship with sub-district headmen and village headmen. They had no conflict of the management between each other.

From the interviews with the Community Development Committee (CDC) and Tambon Development Committee (TDC), it was found that when public forum was organized the number of people who attended were less than it should be. Because most residents around North Bangkok Power Plant had their own job. Therefore, they did not have time to attend the public forum to vote and propose community projects. They recommended that residents should propose big community project rather than small projects. With big community projects, the whole communities around North Bangkok Power Plant would receive more benefit and more sustainable development than small community projects. The Community Development Committee (CDC) and Tambon Development Committee (TDC) suggested that the residents in communities to propose for big community projects. However, the Community Development Committee (CDC) and Tambon Development Committee (TDC) did not get quite good response. Because residents wanted to propose community projects which provided benefit for their own communities.

The Community Development Committee (CDC) and Tambon Development Committee (TDC) suggested that Energy Regulatory Commission or authorized person should make decision to choose the best community project in the area that could provide the maximum benefit for communities.

The Community Development Committee (CDC) and Tambon Development Committee (TDC) suggested that power development fund should allocate budget to every community with the same amount of money. With the same amount of money that power development fund allocated to communities, it would reduce the problem on inequality on doing community project. Each community would have similar budget and it would reduce the conflict between communities on why this community received a lot of budget while the others received less budget.

The Community Development Committee (CDC) and Tambon Development Committee (TDC) said that power development fund provided a lot of benefit to communities. However, after power development fund allocated budget to residents to formulate community projects, the residents should use those budgets carefully to develop and provide benefit to communities.

From interviews with the residents, it was found that they wanted power development fund to adjust and reform the document form to propose community

projects. They said that details in the documents were complicated and it was difficult for them to write and it was not easy to understand.

From the interviews with the residents, it was found that they wanted power development fund to support the repairing cost of product, for example, CCTV because power development fund allocated budget to formulate community projects. But for some community projects, for example, the purchasing project for CCTV, power development fund supported the budget for purchasing but did not have budget to support the repairing cost of product. They suggested that power development fund should have fixing or repairing budget for products, for example, CCTV, voice announcement. Recently, the residents needed to use their own money for fixing and repairing those products by themselves.

Before the residents sent the documents to propose community projects to get approval from authorized person, the sub-district headmen and village headmen would check all documents to make sure that they would not be rejected by authorized person. The sub-district headmen and village headmen said that the residents understood and had experience in how to write and propose community projects.

When the public forum was organized, residents would receive free snack and drinks supported by power development fund budget. During public forum, the employees of power development fund would guide residents about how to write and propose community projects and also guide on what kind of community projects that residents could write and propose.

From the interviews with sub-district headmen, village headmen, and residents, it was found that they had good relationship with the employees of power development fund.

When community projects were formulated, the resident would be invited not only by power development fund to participate in community projects but also by key persons in communities, for example, provincial governor, sub-district headmen, and village headmen to participate in community project formulated by the residents. By inviting those groups of people, it would help prove the existence of community projects and provide the opportunity for them to examine and scrutinize the community projects.

From the interviews with the residents, it was found that they perceive the existence of community projects. However, for some residents who were not interested in proposing community projects, they did not know about the existence of community projects. After community projects were formulated, the power development fund would set up the sign board to inform residents about the existence of community projects.

The residents suggested that the Community Development Committee (CDC) and Tambon Development Committee (TDC) should guide residents on what kind of community projects that could do and could not do. The Community Development Committee (CDC) and Tambon Development Committee (TDC) should advise and suggest on the community projects that might help improve communities and contribute to sustainable development for communities.

The residents suggested that power development fund should support the budget to formulate the community projects related to cultures in communities, for example, Thai New Year's Day, Loi Kra Thong Day, Father's and Mother's Day.

For the conclusion of the stakeholder perspective of Power Development Fund North Bangkok Power Plant, the stakeholders had the opportunity to participate in public forum organized by power development fund organized. Before the public forum, the power development fund would contact the stakeholders who were sub-district headmen and village headmen about the venue and date for the public forum. After sub-district headmen and village headmen knew the date and venue of public forum, they would inform to residents and would gather to have meeting with residents to brainstorm about what they wanted to do and propose for community projects. The sub-district headmen and village headmen would be able to examine and scrutinize the operation and management of power development fund. After the meeting, the sub-district headmen and village headmen would inform the residents about the information that they received. The stakeholders learned how to write and propose community projects from the day of the public forum. The power development fund would inform about how to propose and which documents were necessary to apply for community projects. Sometimes the sub-district headmen and village headmen who were groups of

stakeholders would attend the meeting organized by power development fund to learn how to write and propose community projects. After the meeting, the sub-district headmen and village headmen would inform the residents about the knowledge that they receive.

4.3.1.4 The Learning and Development Perspective

From the interviews with the employees or staff of power development fund of North Bangkok Power Plant, it was found that when power development fund was established, it engaged outsources to teach employees about accounting. The power development fund supported and improved knowledge of employee or staff three times a year. For the knowledge of procurement, the Office of the Energy Regulatory Commissions (ERC) had already set regulation of the procurement. Therefore, power development fund of North Bangkok Power Plant had adapted the procurement regulation to apply to their office. In the future, the power development fund of North Bangkok Power Plant would use technology called "Dynamic Ax" to apply for procurement.

For the conclusion of the learning and development perspective of Power Development Fund North Bangkok Power Plant, the power development fund supported and improved knowledge of employees or staff three times a year. The knowledge involved accounting, procurement.

4.3.1.5 The Environment Perspective

The power development fund of North Bangkok Power Plant supported the environmental management to community by enhancing budget for the project implementation and the power development fund also provided knowledge on power plant to the community by coordinating with the employees of power plant to give information about power plant operation.

The residents proposed community project which placed significance on environment among other residents in communities, for example, the formulation of

environmental conservation project which provided the opportunity for residents to understand and learn about the significance of environment around Wat Kampang.

For treatment and remedies of environment from the operation of power plant, the residents proposed community projects, for example, the conservation project of environment.

For solution to pollution problem, the residents proposed community projects, for example, the promotion of activities to clean and reduce garbage and trash. By promoting the activities, it would help solve pollution problems in communities.

The residents living around North Bangkok Power Plant proposed community project which created activities to save and protect natural resources, for example, the activities to clean and reduce garbage and trash, organize the project on treatment and remedy of environment around the communities area, formulate environmental conservation projects which provided the opportunity for residents to understand and learn about the significance of environment.

The residents also proposed community projects which provided the opportunity to participate in activities that saved and protected natural resources, for example, participating in big cleaning day project. For the big cleaning day project, the residents would have a chance to participate in saving and protecting natural resources.

For the conclusion of the environment perspective of Power Development Fund North Bangkok Power Plant, the residents proposed community projects related to the significance of environment, for example, formulation of environmental conservation projects which provided the opportunity for residents to understand and learn about the significance of environment, the community projects related to solve pollution problems, for example, promoting of activities to clean and reduce garbage and trash, the community projects which provided the opportunity for residents to participate in saving and protecting natural resources, for example, the big cleaning day project.

4.3.1.6 The Social Perspective

The residents proposed community projects on social rehabilitation affected by the operation of power plant, for example, the big cleaning day project

which provided the opportunity for social rehabilitation affected by the operation of power plant.

The job creations under the support of power development fund of North Bangkok Power Plant were namely: the job training project and teaching project on how to make furniture and sell it in market.

The residents propose community projects which were social cooperation, for example, Children's day, Father's day, Mother's day. The power development fund also had urgent budget for the operation and management of power development fund and they used that budget to organize activities.

The development of health care and medical service were undertaken due to the effects from the operation of power plant under the support of power development fund of North Bangkok Power Plant by formulating community projects by residents or local people in the area. Most community projects supported health promoting hospital, for example, medical devices, equipment, fixing the patient room and extending the doctor room at the hospital in the area, the construction of emergency room for patients.

The communities projects that resident who lived around North Bangkok Power Plant propose were about the temple construction and development project, the purchasing project of musical equipment for use in festivals to earn income from the performance.

The community projects that residents proposed for social development around the area near North Bangkok power plant were about the CCTV purchasing project and vocal purchasing project, the scholarship project for students who lived around the North Bangkok Power Plant. The scholarship projects provided for students from every level until university level. The social development was about building a small dam.

For the conclusion of the social perspective of Power Development Fund North Bangkok Power Plant, the residents proposed community projects for job creation, for example, job training project and teaching project how to make furniture and selling it to market, the social cooperation community project to provide opportunity for residents to participate in the survey to improve the electrical system in community

area, the health care and medical services community projects, for example, purchasing medical devices and equipment for health promoting hospital.

The Problems and Obstacles of the Operation and Management of Power Development Fnd of North Bangkok Power Plant

The employees of power development fund of North Bangkok Power Plant said that there were problems of publicizing and disseminating of organizing public forum to the community and participation problem of residents and stakeholders to attend public forum. Moreover, there was also perception problem about the community project that were already developed because residents and people around North Bangkok Power Plant did not know about the community projects.

The employees of power development fund of North Bangkok Power Plant said that there were problem of the limitation of the area and location that developed community projects. In the area under the operation of power development fund North Bangkok Power Plant, there was not enough public areas to do community projects. Because the regulation of Energy Regulatory Commission specified that to do community projects, the projects must be carried out in the public area. But nowadays the area around North Bangkok Power Plant was owned by private sector.

The manager of power development fund of North Bangkok Power Plant said that power development fund faced the lack of staff or employees in the power development fund of North Bangkok Power Plant. Because the amount of work for power development fund seemed to increase but the number of employees and staff at power development fund office were not enough to serve and handle all work.

The recommendations from the stakeholders who were sub-district headmen, village headmen, and residents who lived around the operation and management of power development fund of North Bangkok Power Plant

From the interviews with the sub-district headmen and village headmen, it was found that most community projects proposed by the residents who lived around North Bangkok Power Plant were short-term projects due to the regulation that required residents not to propose the same community projects in one fiscal year and the next.

The problem that the residents who lived around the North Bangkok Power Plant under the operation and management of power development fund faced were about the following: why power development fund did not provide the fixing budget in the case, for example; CCTV was broken but power development fund did not provide the budget for fixing. The power development fund provided the budget for purchasing the product but why they did not provide the fixing budget. Recently, if the CCTV or voice announcement was broken, the sub-district headmen or village headmen and also sometimes residents in the area needed to use their own money to pay for fixing.

The sub-district headmen and village headmen wanted power development fund to be concerned with the regulation in the case when the proposed community projects did not get approval the Community Development Committee, why it took such a long time to return the documents. Because if CDC returned the documents faster, the residents might be able to correct them and submit the documents again. But the fact was the process to return the documents took a long time so the residents were unable to correct the documents and propose community projects.

The sub-district headmen and village headmen around the North Bangkok Power Plant suggested that the power development fund should allocate the budget for residents to formulate the community projects. Because recently, the residents needed to use their own budget to formulate community projects and the residents could disburse the money from power development fund after the community projects ended. Sometimes, the residents did not have enough money to formulate community projects and they needed to make a loan from the bank to do community projects.

For the community projects that had budget of more than 300,000 baht that residents proposed community project and authority given to local government organization to be responsible, around the North Bangkok Power Plant, the public representatives were the group of people who examined and scrutinized the operation of community projects in the area.

The sub-district headmen and village headmen who lived around North Bangkok power plant said that the power development fund of North Bangkok Power

Plant provided a lot of benefit to residents who lived around the power plant. The residents seemed to be satisfied to have power development fund around their area.

4.3.2 Power Development Fund of Nam Phong Power Plant

4.3.2.1 The Overall Efficiency of Operation and Management Perspective

The community projects that community proposed under the support of power development fund of Nam Phong Power Plant numbered about 230 projects a year.

The budget for the community project was divided into two categories: the community project with budget of less than 300,000 baht and the community project with budget of more than 300,000 baht.

For the budget for community projects with less than 300,000 baht, the project would be operated by local people whereas for those with more than 300,000 baht, the projects would be operated by local government organization.

The power development fund of Nam Phong Power Plant allocated budget to promote and support public forums, for example, broadcasting the date and location of public forums for residents to participate.

The social development and rehabilitation of community under the operation of Nam Phong Power Plant resulted from the formulation of community projects. The residents of Nam Phong proposed community projects under the budget supported by Nam Phong power development fund. The community project of Nam Phong areas, for example, the drainage improvement project affected by the operation of power plant. The improvement project would develop society by having drainage for use in communities. The society would be developed by the drainage community project.

The residents around Nam Phong did not propose community projects on renewable energy and technologies that had minimal impact on the environment around the Nam Phong area.

The power development fund of Nam Phong Power Plant supported the community projects related to job creation and increased income of residents, for

example, Mud Mee Silk Weaving Group project. From the Weaving group, it would help residents to have knowledge on how to weave Mud Mee Silk and to become a job for residents. Moreover, the community project received the outstanding community project awards winner prize from power development fund award in 2016.

The power development fund of Nam Phong Power Plant supported community projects that residents proposed for the extension of electricity around Nam Phong area. However, before power development fund supported budget for the extension of electricity project, the staff of power development fund would carry out survey of the areas to make sure that they lacked electricity and needed to extend electricity.

Recently; the community project about the extension of electrification to various localities faced some problems. Because the process to extend electrification required contact with Province Electricity Authority (PEA) to get approval on the extension of electricity around the area. After getting approval, residents needed to bring the documents to contact with power development fund in the area to let power development fund approve the documents once again.

For the conclusion of the overall efficiency of operation and management of Power Development Fund Nam Phong Power Plant, the power development fund supported residents to propose community projects related to social development affected by the operation of power plant, for example, the drainage improvement project affected by the operation of power plant. However, the residents did not propose any community projects related to support the use of renewable energy and technologies. The power development fund supported residents to propose community projects related to create job for communities, for example, Mud Mee Silk Weaving Group project which could increase income. The power development fund supported residents to propose community projects related to extend the electrification project to various localities for use in agriculture project around the Nam Phong area.

4.3.2.2 The Management Process Perspective

The power development fund of Nam Phong Power Plant cooperated and coordinated with ERC and reported to Office of the Energy Regulatory Commission on

the progress of operation and management of power development fund and the progress of community projects around Nam Phong area in every quarter. But the power development fund Nam Phong Power Plant did not report the progress of operation and management of power development fund to province. However, power development fund invited the related organizations or sectors to participate in the meeting to discuss related issues.

The power development fund of Nam Phong Power Plant did not report the progress of operation and management of power development fund. However, the Community Development Committee (CDC) was responsible for reporting the progress of operation and management of power development fund to residents.

The power development fund of Nam Phong Power Plant also reported the progress of the use of budget of power development fund to Office of the Energy Regulatory Commission every month and every quarter.

The power development fund had channels to report the progress of operation and management of power development fund through website of power development fund and also through FACEBOOK of power development fund.

The power development fund supported the participation of residents in the operation and management of power development fund by allowing residents to participate in public forums to propose and vote for community projects.

The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information on website.

For the conclusion of the management process perspective of Power Development Fund Nam Phong Power Plant, the power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization by reporting the progress of the operation and management of power development fund. The power development fund also reported the progress of the operation and management to residents and related organizations every quarter. The channels for reporting the progress of operation and management of power development fund were through the website of power development fund and also through FACEBOOK of power

development fund. The power development fund supported the participation of residents in the operation and management of power development fund by allowing residents to participate in public forums to propose and vote for community projects. The power development fund provided information to residents or stakeholders to examine and scrutinize the transparency and accountability of the operation and management of power development fund through the website.

4.3.2.3 Stakeholder Perspective

The researcher also interviewed with the sub-district headmen of Kok Sung, Kud Nam Sai, and Muang Wan who lived around Nam Phong Power Plant.

From the interviews, it was found that residents participated in public forum that power development fund organized. Before participating in public forum, the sub-district headmen and village headmen who were group of stakeholders would hold pre-meeting with residents to discuss on what they wanted to propose to formulate community projects. Then when the public forum was set up, the residents would propose the community projects that needed to be formulated in the communities and it would reduce the conflict among residents and stakeholders in voting and proposing community project. However, recently sub-district headmen and village headmen said that the number of resident who attended public forum were less than it should be. In the past, when public forum was organized, power development fund had budget by giving each resident who attended public forum 50 baht. But recently, the policy was changed by providing snack and drink for residents who attended public forum instead.

From the interviews with the sub-district headman and village headmen who were group of stakeholders and were the leaders of communities, they said that the residents around the Nam Phong area did not have opportunity to examine or investigate the process for establishing community projects that they had proposed. Because those community projects were managed by the Community Development Committee (CDC) and they did not let residents know about the process of doing or formulating community projects.

From the interviews with the sub-district headmen and village headmen, it was found that residents had the opportunity to learn how to write and propose community projects from the employee of power development fund who taught how to write and propose community projects when public forum was organized. Sometimes, the sub-district headmen and village headmen who were group of stakeholders also became persons to teach residents on how to write and propose community projects.

From the interviews with the residents who lived around the Nam Phong area, it was found, that in the past, power development fund assigned person to come in the area to teach and inform how to write and propose community projects and also gave handout which had detail about how to write and propose community projects. But recently, sub-district headmen and village headmen were the persons who taught and informed about it.

From the interviews with the residents who lived around the Nam Phong area, it was found, that in the past, residents gave authority to sub-district headmen and village headmen to be persons who proposed for community project. However, recently, residents in the areas had the opportunity to write and propose community project by themselves. The community projects that residents proposed includes, for example, purchasing sewing machine project, purchasing bowl project. The sub-district headmen, village headmen, and residents made agreement on spare budget received from the allocation of power development fund to use in temple and school development. When the community projects were formulated, the residents would have a chance to perceive about the existence of community projects. The power development fund had voice communication to inform about the community projects in the area.

The residents said that some community projects were written and proposed by the Community Development Committee (CDC) facing the problem of the quality of product that residents received. Because some products did not match the list that Community Development Committee (CDC) proposed for community projects. The residents recommended that Community Development Committee (CDC) should provide more opportunity for residents to write and propose community projects.

Because from the interviews, it was found that the Community Development Committee (CDC) chose to write and propose and did not provide the opportunity for residents to write and propose community project. The Community Development Committee (CDC) told residents that due to the residents' lack of knowledge and less ability to write and propose community projects, therefore the Community Development Committee (CDC) decided to write and propose by themselves. For community projects proposed and formulated by the Community Development Committee (CDC), the sub-district headmen, village headmen, and residents did not perceive the existence of community project. The Community Development Committee (CDC) never informed the stakeholders about the process and progress of community projects.

The residents informed that when community projects proposed by the residents were rejected by power development fund and authorized person, they did not receive any document that power development fund and authorized person commented on the propose of community project. Normally, if the community projects were rejected, residents would receive comments on the document from power development fund. The residents could then adjust and return the documents to get approval from power development fund and authorized person. The residents thought that power development fund of Nam Phong Power Plant operated and managed without good governance with corruption in the operation and management. The residents thought that Community Development Committee (CDC) representatives did not have the ability and efficiency in operation and management and did not work for the benefit of communities but for their own personal benefit. The residents also suggested that power development fund in area should solve distortion and inequality problem on receiving benefit from the formulation of community projects.

From interviews with the sub-district headmen, village headmen, and residents who lived around the Nam Phong area, it was found that the budget that power development fund allocated for communities to formulated community projects were enough. However, residents did not have the opportunity to write and propose community projects. Moreover, they did not have the opportunity to examine and

scrutinize the community project formulated in the area. With those problem, it made residents feel less interested to attend public forum to vote for community projects. Because even if they voted for community projects, they were not group of people who had a chance to write and propose community projects. They suggested that power development fund should streamline the process to propose community projects, for example, the process for getting approval documents from organization, for example PEA, on extended electrification in community area. The residents suggested that power development fund should distribute budget to each community and let residents manage the budget by themselves.

For the conclusion of the stakeholder perspective of Power Development Fund Nam Phong Power Plant, the stakeholders participated in public forum organized by power development fund. Before participating in public forum, the sub-district headmen and village headmen who were group of stakeholders would hold pre-meeting with residents to discuss on what they wanted to propose to formulate community projects. Then when the public forum was set up, the residents would propose on the community projects that needed to be formulated in the communities and it would reduce the conflict among residents and stakeholders on voting and proposing community projects. However, recently sub-district headmen and village headmen said that the number of residents who attended public forum were less than it should be. The residents did not have opportunity to examine or investigate the process for establishing community projects that they had proposed because those community projects were managed by the Community Development Committee (CDC) and they did not let residents know about the process on doing or formulating community projects. The stakeholders had the opportunity to learn how to write and propose community projects from the employees of power development fund who taught how to write and propose community projects when public forum was organized.

4.3.2.4 The Learning and Development Perspective

From the interviews with the employees of power development fund of Nam Phong Power Plant, it was found that the power development fund of Nam Phong

Power Plant supported training for employees and staff about knowledge that could apply to the operation of power development fund, the knowledge on the management of power development fund, the regulation of power development fund related to procurement and the knowledge about internal audit. The knowledge was provided at least once a year.

The power development fund of Nam Phong Power Plant supported training on accounting at least once or twice a year and also supported training to the finance officers by sending them to participate in training about finance at least once a year.

For the conclusion of the learning and development perspective of Power Development Fund Nam Phong Power Plant, the power development fund supported and improved knowledge of employees or staff of power development fund at least once a year about accounting and procurement.

4.3.2.5 The Environment Perspective

From the interviews with the sub-district headmen and village headmen around Nam Phong area, it was found that residents proposed community project related to place significance of environment, for example, development of the Sufficiency Economy Center established under the theory of king Rama 9. The Sufficiency Economy Center aimed to be a center to let residents in communities understand the significance of environment.

The residents also proposed community projects which provided treatment and remedy affected by the operation of power plant, for example, the drainage improvement project around the communities near the operation of power plant. Because the drainage around the area was effected by the operation of power plant, therefore drainage improvement project would help solve the problem from the power plant.

The residents also proposed community projects which helped solve pollution problem, for example, the canal dredging project affected by the pollution. The canal dredging project would help communities reduce water pollution problem.

The residents proposed community projects to create activities to save and protect natural resources, for example, organizing activities to search for water supply for use in agriculture projects. Because around Nam Phong power plant, there was wastewater problem from the operation of power plant. Therefore, the activities to search for water supply would help solve problem and have water resources for use in communities.

The residents proposed community project that provided them with the opportunity to participate in saving and protecting natural resources, for example, search of water supply for use in agriculture project. Because around Nam Phong power plant, there was wastewater problem from the operation of power plant. Therefore, the activities to search for water supply would help solve the problem and have water resources for use in communities.

For the conclusion of the environment perspective of Power Development Fund Nam Phong Power Plant, residents proposed community projects under the drainage improvement project around the communities near the operation of power plant. Because the drainage around the area was effected by the operation of power plant. The residents proposed community projects under the canal dredging project affected by pollution. The canal dredging project would help communities reduce the problem of water pollution. The residents proposed community projects to organize activities to search for water supply for use in agriculture project. Because around Nam Phong power plant, there was the wastewater problem from the operation of power plant. Therefore, the activities to search for water supply would help solve the problem and have water resources for use in communities.

4.3.2.6 The Social Perspective

From the interviews with the sub-district headmen and village headmen who lived around Nam Phong area, it was found the following:

The residents proposed community projects on social rehabilitation affected by the operation of power plant, for example, public health providing project for residents who lived around the operation of power plant.

The job creation under the support of power development fund of Nam Phong Power Plant came from the formulation of community projects by residents or local people in the area, for instance, to establish of Mud Mee Silk Weaving Group, to purchase materials and equipment for weaving Mud Mee Silk.

The support and improvement quality of life in society under the power development fund of Nam Phong Power Plant came from the formulation of community project by residents in the area, for example, the procurement of close circuit camera (CCTV) , the procurement of sprayer for killing mosquito, the scholarship project for students who had excellent academic score, the provision of education and sport equipment, the procurement of medical equipment, for example, sphygmomanometer, blood glucose test meter , cardio tachometers for health promoting hospital.

The social cooperation from the power development fund of Nam Phong Power Plant came from the formulation of community projects by residents in the area. The power development fund would support the budget to formulate community projects, for example, the community projects for traditional Thai New Year's Day (SongKran Festival).

The development of health care and medical service were carried out due to the impact from the operation of power plant. The power development fund would support the budget to formulate community projects. Most community projects supported health promoting hospital, for example, the procurement of sprayer for killing mosquito.

For the conclusion of the social perspective of Power Development Fund Nam Phong Power Plant, the residents proposed community projects to rehabilitate society affected by power plant, for example, public health for residents who lived around the operation of power plant. The residents proposed community projects for job creation on establishment of Mud Mee Silk Weaving Group to make Mud Mee Silk. The residents also proposed community projects for the health care and medical services, for example; the procurement of sprayer for killing mosquito which helped reduce dengue disease in communities, the procurement project for blood glucose test meter for use in health promoting hospital.

The Success of the Operation and Management of Power Development Fund of Nam Phong Power Plant

The power development of Nam Phong Power Plant received the outstanding community project awards winner prize from power development fund award in 2016 for the Mud Mee Silk Weaving Group community project

The Problems and Obstacles of the Operation and Management of Power Development Fund of Nam Phong Power Plant

From the interview with the manager of power development fund of Nam Phong Power Plant, the problems of the allocation of budget by the Community Development Committee (CDC) to formulate community projects in community areas seemed to be more than it should be. The employees of power development fund suggested that the Community Development Committee (CDC) should allocate budget to government sector, for example, health promoting hospital, school, and other government sectors.

The power development fund of Nam Phong Power Plant also faced the problem of the policy and regulation deployed by Energy Regulatory Commission that did not match and could not apply to the operation of power development fund Nam Phong Power Plant, especially procurement process in power development fund.

The manager of power development fund of Nam Phong Power plant said that the welfare of employees or staff of power development was different from that of officers at Office of Energy Regulation Commission Regional Office. Therefore, it led to less motivate to work for the employees toward their responsible duties.

After power development fund of Nam Phong Power Plant surveyed and investigated community project, it was found that the community project of extensive electricity did not have public forums for residents to propose community project. Recently, it was to investigate and find volunteers who proposed the community projects.

The power development fund of Nam Phong Power Plant did not have Key Performance Indicator to evaluate the performance of employees of power development

fund of Nam Phong Power Plant. Recently, the employees of power development fund had only job description for their own responsibility. However, in 2017, the power development fund of Nam Phong Power Plant set up Key Performance Indicator to evaluate performance of employees.

The interviewed persons suggested that Energy Regulatory Commission should set up the regulation which could apply to all power development fund in Thailand. Recently it was found that the regulation did not have the exact pattern. The regulation changed often every year.

From the interview with manager of power development fund of Nam Phong Power Plant, it was found that there were problems of the following up and evaluation of community projects. The interviewed person suggested that the employees of power development fund must follow up and evaluate all community projects in the area, not only some community projects.

The recommendations from the stakeholders who were sub-district headmen, village headmen, and residents who lived around the operation and management of power development fund of Nam Phong power plant

The sub-district headmen said that most community projects established around the Nam Phong area were not continuous projects so they were not long-term projects. The community projects around the area were about rebuilding or reconstruction of temples, the occupational group for weaving, and extending electricity projects. In addition, there were community projects which supported health promoting hospital, for example; the procurement of sprayer for killing mosquito.

The sub-district headmen also said that the resident around the Nam Phong area did not have opportunity to examine or investigate the process for establishing community projects that they had proposed. Because those community projects were managed by the Community Development Committee (CDC) and they did not let residents know about the process of doing or formulating community projects.

Some community projects around the Nam Phong area were unsuccessful because of the problem of procurement process, the problem of the quality of the products which residents proposed for community projects.

The sub-district headmen mentioned that around the Nam Phong areas, there were problems of transparency and corruption situation in the operation and management of power development fund. The sub-district headmen suggested that the members of Community Development Committee should be reorganized.

The sub-district headmen suggested that the location of power development fund Nam Phong Power Plant should be far from residential areas. Therefore, the power development fund of Nam Phong Power Plant should change location of the office to the one where it was easy for residents to contact. The sub-district headmen also mentioned about the number of residents to participate in public forum were less than it should be. Therefore, they would like power development fund to solve the participating problem of residents in the public forum.

The residents in area did not have the opportunity to write and propose community projects because the Community Development Committee (CDC) representatives said that the residents did not have knowledge and ability to write and propose community projects. Therefore, CDC decided to write community projects by themselves. However, the products that residents received from the community projects that CDC proposed were of low quality which were different from what residents voted for community project. Therefore, the residents suggested that power development fund should examine and scrutinize the procurement process of the products.

The residents suggested that the power development fund should assign persons to area when the public forum was organized and guide residents on how to write and propose community projects.

4.3.3 Power Development Fund of Ratchaburi Electricity Generating Company Limited

4.3.3.1 The Overall Efficiency of Operation and Management Perspective

The budget for the community projects would be divided into two categories; the community project with budget of less than 300,000 baht and the community project with budget of more than 300,000 baht.

For the budget for community projects with less than 300,000 baht, the project would be operated by local people whereas for those with more than 300,000 baht, the project would be operated by local government organization.

In 2015, the Community Development Committee proposed the budget to get approval from the Energy Regulatory Commission for 21,220,000 baht. However, the budget that power development fund got approval from Energy Regulation Commission was 20,257,000 baht. At the end of fiscal year, the budget that was disbursed to formulate community project around power development fund of Ratchaburi Electricity Generating Company Limited was 14,254,283 baht.

For the budget that power development did not disburse to residents to do community projects would be returned to the Office of Energy Regulatory Commission. For the process of returning budget to the Office of Energy Regulatory Commission, the power development fund of Ratchaburi Electricity Generating Company Limited must prepare document to inform the Office of Energy Regulatory Commission about the budget that power development already disbursed to residents to formulate community projects.

The social development and rehabilitation of community under the operation of power development fund of Ratchaburi Electricity Generating Company Limited resulted from the formulation of community projects. The residents who lived around Ratchaburi Electricity Generating Company Limited had proposed community projects under the budget supported by Ratchaburi Electricity Generating Company Limited Power Development Fund under the criteria framework set forth by the ERC which involved eleven aspects, for example, road repair community project which was affected by the transportation of vehicles for use at power plant. The road repair would benefit the communities and society to have social development from necessary facilities.

The power development fund of Ratchaburi Electricity Generating Company Limited did not support the community projects to use renewable energy and technologies having minimal impact on the environment.

The power development fund of Ratchaburi Electricity Generating Company Limited supported the community projects related to job creation around the area. However, the community projects for creation job were different in each Tambon (Sub-district), for example, the community project for purchasing materials for weaving, the community project for purchasing materials for making loincloth. The residents could sell those products to customers to earn income to their community. The mushroom farming project could generate income for the residents by selling the mushrooms.

The power development fund of Ratchaburi Electricity Generating Company Limited supported the extensive electrification to various localities by supporting transformer for low voltage and high voltage through community projects that residents had proposed around Ratchaburi Electricity Generating Company Limited area and also the community project for setting up light bulbs for distant areas.

After residents received the budget to formulate community projects on enhancing extensive electrification, the budget would be transferred to the Provincial Electricity Authority (PEA) to manage and to operate. The residents should have permission from PEA. Then, they must let power development fund know that PEA already approved to do the community project in selected area. After the community project was formulated, the employees or staff of power development fund would go to the area to conduct evaluation.

For the conclusion of the overall efficiency of operation and management of Power Development Fund Ratchaburi Electricity Generating Company Limited, the power development fund supported residents to propose community projects which could develop society from the operation of power plant, for example, the road repair community project which affected by the transportation of vehicles for use in power plant. However, around Ratchaburi Electricity Generating Company Limited, residents did not propose community projects which supported the use of renewable energy. The power development fund supported residents to propose community projects which

provided the opportunity to create job for communities, for example, purchasing materials for weaving and making loincloth. Residents can have a job and increase income from become weavers. The power development fund supported residents to propose community projects on the extensive electrification around the operation of Ratchaburi Electricity Generating Company Limited and also the community project for setting up light bulbs in distant areas.

4.3.3.2 The Management Process Perspective

The power development fund of Ratchaburi Electricity Generating Company Limited cooperated and coordinated with the Energy Regulatory Commission to report the progress of operation and management of power development fund especially financial management of power development fund required to report to Energy Regulatory Commission every month. The power development fund of Ratchaburi Electricity Generating Company set up meeting with the Provincial Governor, Community Development Committee representatives, and other related people to report on the progress of the operation and management at least once or twice a month. Moreover, the employees or staff of power development fund used Webtra which was managed by ERC to upload the progress of the operation and management of power development.

For residents around the operation of Ratchaburi Electricity Generating Company Limited area, the power development fund coordinated with residents to report the progress of the operation and management through Facebook page, newsletters and voice communication, local newspaper to inform residents about what power development fund had done to the community and the progress of the operation and management. Moreover, the power development fund set up label or banner to inform residents about the community projects formulated around the residents' areas. Normally, the frequency to report the progress of operation and management to residents in the area was every quarter.

The power development fund supported the participation of residents in the operation and management of power development fund by promoting public forums for residents to participate in the forum to propose and vote for community projects.

The power development fund provided information to residents or stakeholders to scrutinize and examine the transparency of power development fund through the information on website and Facebook of power development fund.

For the conclusion of the management process of Power Development Fund Ratchaburi Electricity Generating Company Limited, the power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization by reporting the progress of the operation and management of power development fund and also invited related organizations to participate in discussion on the operation and management of power development fund. The power development fund also reported the progress of the operation and management to residents and related organizations at least four times a year (once every quarter). The channels that power development fund provide information were through website and Facebook of power development fund. The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information on website and Facebook of power development fund.

4.3.3.3 Stakeholder Perspective

The researcher also interviewed the sub-district headmen who lived in Hin Kong, Huai Pai and Don Rae area around Ratchaburi Electricity Generating Company Limited.

From the interviews, the sub-district headmen said that the power development fund of Ratchaburi Electricity Generating Company Limited reported the progress of management, the budget that would be allocated to formulate community project in each fiscal year, and all community projects formulated in the area. The information on the progress of power development fund was also published by newsletters. Moreover, the power plant provided the opportunity for sub-district headmen to look inside the power plant to see the operation of power plant once a year.

The participation of residents in the public forum around the operation of power development fund of Ratchaburi Electricity Generating Company Limited involved the representatives of village who were selected to attend public forum to propose for the project. Before organizing public forum, the head of village would hold meeting with residents in the village to ask about what they wanted to propose for community projects. When the residents decided what they wanted, the village headmen would attend public forum and shares about what residents in the village wanted to propose for community project. However, the sub-district headmen suggested that power development fund should increase communication between power development and residents in the area. Recently, there was still gap between power development fund and community.

For the budget that power development fund of Ratchaburi Electricity Generating Company Limited allocated to community to propose for community project, the residents could examine and scrutinize it. However, the budget allocated to community to propose the community project seemed to be insufficient for the residents.

From the interviews with the residents, it was found that they had knowledge on how to write and propose community projects by teaching the employees of power development fund during attending public forum and also by teaching the sub-district headmen and village headmen. However, most residents preferred to vote for community projects that they wanted and gave authority to sub-district headmen and village headmen to write and propose community projects for them. The residents thought that with the knowledge of sub-district headmen and village headmen, it was better to let them write and propose community projects for community.

From the interviews with residents, it was also found that if the community projects proposed by the residents did not get approval from authorized person, the documents would be returned to the communities for adjustment or addition of necessary documents under the list required by power development fund. After the residents made adjustment and addition of documents, they could send them back to get approval. From the interviews with residents, it was also found that when the

documents were returned to them for adjustment or addition of necessary documents. When they returned them back to power development fund, the community projects were approved by authorized person.

From the interviews, it was found that the community projects around area included, for example, repair project for pavilion in community, purchasing project for water dispenser, farming, and agriculture project, electricity extension projects. All community projects proposed by the residents got approval. When the community projects were formulated, the residents were informed by voice communication in the community and the signboard that power development fund set up to inform residents about the existing community projects.

From the interviews, it was found that residents wanted power development fund to support the community project on extended electricity in community. Because recently, in communities area, there were problems of doing community projects on extended electricity.

From the interviews with the residents, they requested that power development fund should motivate residents to participate in public forum by giving free snack and drink. Moreover, they wanted power development fund to assign persons with knowledge on how to write and propose community projects and came to the area to teach how to write and propose community projects.

The residents said that the sub-district headmen and village headmen had the ability and efficiency to write and propose for community projects which enable all community projects to get approval from power development fund and did not face any problem of doing community projects.

From interviews with the sub-district headmen, village headmen, and residents, it was found that the community project related to the use of land and area must be located in public area and not in private or in the area that have owners. Moreover, the community projects in each district area should had various kind and type of community project and they should not be similar to the projects that local organization organized or did.

For the conclusion of the stakeholder perspective of Ratchaburi Electricity Generating Company Limited, the stakeholders had the opportunity to participate in the public forum organized by power development fund. The sub-district headmen and village headmen were group of stakeholders who became the representatives of communities to attend public forum to propose the project. Before organizing public forum, the sub-district headmen and village headmen held meeting with residents in communities to ask about what they wanted to propose for community projects. When the residents decided what they wanted, the sub-district headmen and village headmen would attend public forum and shared what residents in the village wanted to propose for community projects. The stakeholders had the opportunity to examine and scrutinize the operation and management of power development fund and also budget allocated to residents to formulate community projects through the newsletters published by power development fund. The stakeholders received knowledge on how to write and propose community projects from the employees of power development fund who had knowledge on how to propose for community projects.

4.3.3.4 The Learning and Development Perspective

From the interviews with the employees of power development fund of Ratchaburi Electricity Generating Company Limited, it was found that the power development fund of Ratchaburi Electricity Generating Company Limited supported training for employees and staff, for example, the knowledge on the evaluation, examination and following up of the performance of power development fund in designated area, the knowledge about finance, accounting, procurement, and also the knowledge about internal audit. Moreover, the employees and staff of power development fund also received knowledge on the operation and management of power development fund. The Energy Regulatory Commission provided quota for employees and staff to participate in related training. Those trainings were organized at least four or five times a year.

For the conclusion of the learning and development perspective of Power Development Fund Ratchaburi Electricity Generating Company Limited, the power

development fund supported and improved knowledge of employees or staff of power development fund at least four or five times a year by supporting knowledge on finance, accounting, procurement, and internal audit.

4.3.3.5 The Environment Perspective

From the interviews with the sub-district headmen and village headmen, it was found that residents proposed community projects which placed significance on the environment around the operation and management of power development fund, for example, the study trip about the community waste management for creating sustainability for communities which raised the concern of the residents around power development fund of the significance of environment.

The residents also proposed community projects which provided treatment and remedies of environment affected by the operation of power plant through the formulation of community project, for example, the landscape recondition project affected by the operation of power plant. Because the landscape around power plant might be effected by the operation of power plant. Therefore, the landscape recondition would be able to treat and remedy the impact from the operation of power plant.

The residents proposed community projects which helped solve pollution problems, for example, wastewater treatment projects for public canals affected by the operation of power plant. From the community project, the residents would have clean water to use in daily life.

The residents proposed community projects which created activities to save and protect natural resources, for example, study trip project to learn about junk management for sustainable community by letting residents learn how to manage and save natural resources from junk management in communities, the trash bin purchasing project for use in communities providing the opportunity for residents to save and protect natural resources from the trash by having trash bin, formulate canal dredging project so as to have clean water resources to use in communities.

The residents proposed community projects which provided the opportunity for residents to participate in activities to save and protect natural resources, for example, study trip projects which allow residents to participate in the activities for learning and

studying of junk management for sustainable community. Moreover, the residents would learn how to save and protect natural resources.

For the conclusion of the environment perspective of Power Development Fund Ratchaburi Electricity Generating Company Limited, the residents proposed community projects of the significance of environmental management, for example, the study trip on the community waste management for enhance sustainability for communities. The residents proposed community projects related to landscape rehabilitation project affected by the operation of power plant. Because the landscape around power plant might be affected by the operation of power plant. Therefore, the landscape rehabilitation would be able to treat and remedy affected by the operation of power plant. The residents proposed community projects which were related to wastewater treatment projects in the public canal which affected by the operation of power plant.

4.3.3.6 The Social Perspective

From the interviews with the sub-district headmen and village headmen, it was found that residents proposed community projects related to social rehabilitation affected by the operation of power plant, for example, water improvement project. The water system was affected by the operation of power plant. Therefore, with community project for water improvement, it would help develop quality of water for residents to consume and from the good quality of water, it would help improve the quality of society as well.

The job creation under the support of power development fund of Ratchaburi Electricity Generating Company Limited came from the formulation of community projects by residents or local people in the area. The community projects for job creation around Ratchaburi Electricity Generating Company Limited area were the following: purchasing materials for weaving, purchasing materials for making loincloth. The residents could sell those products to customers to earn income to their community.

The social cooperation from the power development fund of Ratchaburi Electricity Generating Company Limited came from the formulation of community

projects by residents in the area. The power development fund would support the budget to formulate community projects, for example, sport activities between Tambon (Sub-district). The residents in each area proposed the budget to formulate community project to buy sport equipment and any necessary materials which could be used during sport activities. The community project was also formulated to buy equipment for voice communication to use in the area.

The support and improvement of quality of life in society under the power development fund of Ratchaburi Electricity Generating Company Limited came from the formulation of the community projects by residents in the area, for example, the procurement of Close Circuit Camera (CCTV), the procurement of sprayer for killing mosquito, the scholarship project for students with excellent academic score.

The development of health care and medical service was carried out due to the impact from the operation of power plant under the support of power development fund of Ratchaburi Electricity Generating Company Limited by formulating community projects. The power development fund would support the budget to formulate community projects. Most community projects supported health promoting hospital, for example, the procurement of medical equipment, rebuilding and renovating the hospital; conference room, as well as support of the budget for purchasing equipment such as desks, computers for use in the hospital.

For the conclusion of the social perspective of Power Development Fund Ratchaburi Electricity Generating Company Limited, the residents proposed community projects related to social rehabilitation affected by power plant, for example, water improvement project. The water system was affected by the operation of power plant. Therefore, with community project for water improvement, it would help develop quality of water for residents to consume and from the good quality of water, it would help improve the quality of society as well. The residents proposed community projects for job creation, for example, purchasing materials for weaving and making loincloth which could create job for residents and they could sell the products in the market which could also generate income for communities. The residents proposed community projects for social cooperation in communities, for

example, the community project which promoted and supported sport activities. The residents also proposed community projects for the health care and medical services, for example, support of health promoting hospital procurement of medical equipment, rebuilding and renovating hospital; conference room, and also budget for purchasing equipment such as desks, computers for use in the hospital.

The Success of the Operation and Management of Power Development Fund of Ratchaburi Electricity Generating Company Limited

The power development fund of Ratchaburi Electricity Generating Company Limited received First Runner-up Award for Outstanding Category B Fund, the Outstanding Performance Award: Effectiveness from Power Development Fund Award in 2016.

The Problems and Obstacles of the Operation and Management of Power Development Fund of Ratchaburi Electricity Generating Company Limited

From the interviews with the employees of power development fund of Ratchaburi Electricity Generating Company Limited, it was found that there were problems of the number of employees or staff of power development fund which was not enough compared with the amount of work for power development. The power development fund of Ratchaburi Electricity Generating Company Limited received limited budget for operation and management inside power development fund which affected the overall management of power development fund.

From the interviews, it was found that there was conflict between Tambon Administration Organization and the sub-district headman about the budget received from power development fund and the way that they used the budget to formulate community projects.

The power development fund of Ratchaburi Electricity Generating Company Limited did not have manager to manage and control the operation of power development fund.

The employees of power development fund Ratchaburi Electricity Generating Company Limited said that there were problems of the lack of welfare that employees or staff received from working at power development fund. The employees or staff only had social security card. However, ERC provided uniform for them.

After power development fund of Ratchaburi Electricity Generating Company Limited surveyed and investigated community projects, it was found that some community projects did not have signboard to inform about the detail of community project. Some areas had already proposed for budget to formulate community project. But after survey and investigation, the community project was not found.

The recommendations from the stakeholders who were sub-district headmen, village headmen, and residents who lived around the operation and management of power development fund of Ratchaburi Electricity Generating Company Limited

The sub-district headmen mentioned that the power development fund of Ratchaburi Electricity Generating Company Limited should be concerned and focus on the process to propose community projects and the process to approve the community projects. Because recently the community faced the problem of the delay to approve the community projects. The sub-district required the person with the authority to approve community projects to come and listen to what the community wanted to propose for community projects. It will reduce time to approve community project because the authorized person would see what the community wanted and met with the residents.

There was no problem from the formulation of community projects around power development fund of Ratchaburi Electricity Generating Company Limited. But there was a problem of the approval of community projects by the person with the authority to make decision to approve community projects. In some areas when the residents proposed community projects, they got approval to formulate community projects. On the other hand, other residents proposed the similar community project but did not get approval for the formulated community projects.

The sub-district headmen suggested that the authorized person should come to visit the area and examine and listen to what community or what stakeholders wanted to improve for their community. Moreover, the power development fund in designated area should organize the meeting between the Energy Regulatory Commission and village headmen of each area to discuss and exchange the idea which provided benefit for community. Moreover, the budget allocated to the community to propose for community projects should be more and dispersed to all of community, and not allocated to some specific area only. The sub-district headmen suggested that the regulation of power development fund which gave authority to sub-district administrative organization to manage and propose community project with more than 300,000 baht should be changed and given authority to residents to formulate the community project with more than 300,000 baht. The sub-district administrative organization already received budget from government to develop in the community. Recently, around Ratchaburi Electricity Generating Company Limited power plant, there were community projects that used the budget of government and the budget of power development which were similar. Therefore, the sub-district headmen suggested that Energy Regulatory Commission or authorized person should be concerned about this issue.

The sub-district headmen also suggested that the Energy Regulatory Commission should provide knowledge about regulation on purchasing and procurement for Community Development Committee representatives, residents in the area because Community Development Committee representatives and residents did not have knowledge on purchasing and procurement.

Most community projects established around the power development fund of Ratchaburi Electricity Generating Company Limited were continuous projects. Even at the end of fiscal year, the community in the area still proposed the community project with continuous improvement for long-term development.

The residents suggest that power development fund should motivate residents in the area to participate in public forum organized for them to vote for and propose

community projects by having budget to support residents, for example, free snack and drinks.

For the conclusion of power development fund category B in six perspectives for the operation and management, power development fund in category B supported residents to propose community projects which could increase the quality of life of residents and community projects that helped solve impact from the operation of power plant, for example, temple and school restoration which received impact from the operation of power plant. The power development fund in category B coordinated with related organizations and all stakeholders to report the progress of the operation and management. Moreover, power development fund also supported the participation of residents in attending the public forum to propose and vote for community projects. The power development fund also provided the opportunity for all stakeholders to receive information about the operation and management of power development fund and all stakeholders had the opportunity to participate in the public forum that power development fund organized and all stakeholders also had the opportunity to examine and scrutinize the performance of power development fund. The power development fund in category B provided the opportunity for employees who worked for power development fund to improve knowledge and skills which were necessary to apply in their duties, for example, knowledge on procurement and accounting. The power development fund in category B supported and allocated budget for residents to propose community projects related to environmental projects and social projects.

The Evaluation of the Operation and Management of Power Development Fund under the Concept of Sustainability Balanced Scorecard (SBSC)

The researcher collected data from the interviews with key informants who were the Energy Regulatory Commission (ERC), Power Development Fund Department, including the head of department and employees of the department, the manager of OERC regional office, the managers and employees of power development fund in six designated areas, the sub-district headmen, the village headmen, and the residents who lived around power plant. The results from data collection were presented in six

perspectives under the Sustainability Balanced Scorecard perspective which included the overall efficiency of operation and management, management process, stakeholders, learning and development, environmental, and social perspectives.

The researcher collected data from key informants in power development fund in category A and B under the six perspectives of Sustainability Balanced Scorecard theory. The researcher selected three power development fund in category A and three power development fund in category B using a criteria of types of fuel mostly used for electricity generation in the power plants, which were natural gas, lignite, fuel oil, and diesel. The researcher evaluated the performance of each power development fund by using indicators i.e. the highest point of 3, the medium point of 2, and the lowest point of 1 as shown in chapter 3. From the results of each indicator and each power development fund, they would come out with the total evaluation point in power development fund in category A and B.

4.4 Power Development Fund Category A

4.4.1 Power Development Fund of Mae Moh Power Plant

This table focuses on the issues, scores, and results from collecting information from the power development fund of Mae Moh Power Plant.

Table 4.1 The issues, scores, and results from collecting information from the power development fund of Mae Moh Power Plant.

Perspectives	Issues	Scores	Results from collecting information
The overall efficiency of operation and management	The role of power development fund supports society and communities which receive impact from the	3	The power development fund supported residents to propose community projects, for example, the road and street repair project affected by the

Perspectives	Issues	Scores	Results from collecting information
	operation of power plant.		transportation. If the road and street around the area are improved, it would help society to develop because residents would have good standard of living due to the good facilities.
	The support of the use of renewable energy and technologies that reduce impact on the environment.	1	Residents did not propose any community projects which supported the use of renewable energy and technologies that had minimal impact on environment.
	The decentralized development to provincial areas (job creation).	3	Residents proposed community projects related to create job in the designated area, for example, the creation of occupational group for mushroom cultivation project. The mushroom cultivation project is set up in Sob Jang and Sob Pard area. The mushroom farming could be an occupation for residents in the area.

Perspectives	Issues	Scores	Results from collecting information
	The decentralized development to provincial areas (increased income).	3	Residents proposed community projects to increase income for community around power plant in designated area, for example, the selling of mushrooms from the cultivation project. When residents created occupational group for mushroom farming, it could sell the mushrooms to the market and receive income from sell mushroom. The selling of mushroom from cultivation project was set up in Sob Jang and Sob Pard area.
	The support of the extensive electrification to various localities	3	Residents proposed community projects to extend the electrification to various localities around Mae Moh area who lived in distant location which were the extensive electrification projects around Sob Jang Village, the purchasing battery project which was

Perspectives	Issues	Scores	Results from collecting information
			used for solar cell panel in the village.
		Average 2.6	
The Management Process Perspective	The coordination and participation with related organizations and other sectors.	3	The power development fund coordinated with related organizations, for example, a provincial governor and local administrative organization at least twice a month to report the operation and management of power development fund.
	The frequency of reporting the progress of the operation and. management of power development fund	3	The power development fund reported the progress of the operation and management to residents and related organizations at least twice a month and reported progress through an annual report once a year.
	The channel for reporting the progress of the operation and management of power development fund.	3	The power development fund had channels to report the progress of operation and management of power development fund by public press release, newsletter, annual report, and through

Perspectives	Issues	Scores	Results from collecting information
			website of power development fund.
	The power development fund provide opportunity for related organizations or residents to participate in the operation and management of power development fund.	3	The power development fund supported the participation of residents toward the operation and management of power development fund through the participation in public forums to propose and vote for community projects and the pre-meeting that allowed the residents in the area to discuss on problem that need to be solved in the area.
	The operation and management of power development fund have transparency and accountability which provide benefit to all stakeholders.	3	The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency and accountability of power development fund through the information in the annual report. In addition, the website of ERC also had information about the operation and management of power development fund

Perspectives	Issues	Scores	Results from collecting information
			which stakeholders were able to examine and scrutinize and the information was separated in each power development fund in designated area.
		Average 3	
The stakeholder perspective	The participation of stakeholders in the operation of power development fund, for example, attending public forum, the opportunity to propose community projects.	3	The stakeholders around the operation of power development fund had the opportunity to participate in public forum operated by power development fund. The stakeholders said that before organizing the public forum, there was broadcasting to inform them about the date and location of public forums.
	The opportunity for examination and scrutinze by stakeholders in the operation and management of power development fund.	3	The stakeholders said that they had the opportunity to examine and scrutinize the operation of power development fund through the participation of public forums which they could know and examine the number of budget that power development fund

Perspectives	Issues	Scores	Results from collecting information
			allocate for formulating community projects in each fiscal year. Moreover, the stakeholders had a chance to visit power development fund office to ask about the budget and the performance of power development fund toward the community projects in areas. The stakeholders could examine and scrutinize the community projects from the signboard that power development fund informs after formulated community projects and the project was finished. The stakeholders were able to examine and scrutinize about the existence of community projects through the power development fund office in each designated area.
	The perception of knowledge on how to write and propose community projects.	3	The stakeholders said that they had a chance to learn how to write community projects which were suggested by the employees

Perspectives	Issues	Scores	Results from collecting information
			of power development fund. After knowing how to write community projects, the stakeholders would have the opportunity to propose community projects which were less than 300,000 baht.
		Average 3	
The learning and development perspective	Providing knowledge /the number of organizing activities that support and improve knowledge of employees at power development fund, for example, the regulation, the procurement regulation related to the operation and management of power development fund.	2	The power development fund supported and improved knowledge of employees or staff of power development fund 1-2 times a year. The trainings were about the procurement and useful knowledge, for example, accounting and finance.
		Average 2	
The environment perspective	The significance of environment around the operation and management of power development fund under the support of	3	Residents proposed community projects, for example, the training project for young generation about the significance of environment. This

Perspectives	Issues	Scores	Results from collecting information
	power development fund through community projects.		community project help all of young residents in communities to understand on how significant of environment.
	The treatment and remedy affected by the operation of power plant under the support of power development fund through community projects.	3	Residents proposed community projects, for example, landscape development project. The operation of power plant may affect the landscape around the power plant and therefore the landscape can subside and the subsidence may affect the environment in the area.
	The solution to pollution problem under the support of power development fund through community projects.	3	Residents proposed community projects to solve pollution problem, for example, the canal digging project for water storage which could solve the wastewater problem and it would help residents to have clean water for daily use and it would help to improve the quality of life of residents in communities.

Perspectives	Issues	Scores	Results from collecting information
	Organizing activities to save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects on creating activities which could save and protect natural resources, for example, the training on how to prevent forest fire. The knowledge and training on how to prevent forest fire would help residents in communities to understand how to protect natural resources in their area.
	The participation in activities that save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects on the creation of activities to participate in training activities to save forest fire forest problem. From the community projects, the residents would know how to prevent from forest fire which protect natural resources.
		Average 3	
The social perspective	Social rehabilitation affected by the operation of power plant under the support	3	Residents proposed community projects for improved plumbing in the communities. From the

Perspectives	Issues	Scores	Results from collecting information
	of power development fund through community projects.		improved plumbing, it would help residents to have good quality water to use in the communities and it would contribute to social rehabilitation.
	The job creation under the support of power development fund through community projects.	3	Residents proposed community projects on job creation, for example, the contract teacher project which encouraged residents or local people around Mae Moh area to apply as contract teachers to teach at schools around Mae Moh area. The community project would help residents in communities to have a job and have income for living.
	The social cooperation under the support of power development fund through community projects	3	Residents proposed community projects on social cooperation in community, for example, Songkran's Day, Children's day, Sport's day. Thanks to the activities, the residents would have a chance to gather together and

Perspectives	Issues	Scores	Results from collecting information
			cooperate with one another to do activities and it would be the opportunity for the society to cooperate with one another in doing activities.
	Support of the health care and medical service under the support of power development fund through community projects.	3	The power development fund supported community projects on the health care and medical services; for example, support medical expense for patients and purchasing project for medical devices. By having those community projects, it would help to support and improve healthcare in communities area and it would help to improve quality of life of residents.
		Average 3	

4.4.2 Power Development Fund in Wang Noi Power Plant

This table focuses on the issues, scores, and results from collecting information from the power development fund of Wang Noi Power Plant

Table 4.2 The issues, scores, and results from collecting information from the power development fund of Wang Noi Power Plant

Perspectives	Issues	Scores	Results from collecting information
The overall efficiency of operation and management	The role of power development fund supports society and communities which receive impact from the operation of power plant.	3	The power development fund supported residents to propose community project, for example, purchasing water filter for community to drink clean water. The project would help residents to have clean water in daily life. To have clear water for consumption, the quality of life of residents would improve and would contribute to social development.
	The support of the use of renewable energy and technologies that reduce impact on the environment.	3	Residents proposed community projects to purchase a paddle wheel aerator by using solar energy which helped solve wastewater problem in the communities.
	The decentralized development to provincial areas (job creation).	3	Residents proposed community projects which provided the opportunity to create job for communities, for example, the

Perspectives	Issues	Scores	Results from collecting information
			establishment of occupational groups to grow mushrooms. With the occupational groups among residents, it would enable them to have their job in farming mushroom. By have job, it woul help to improve quality of life of residents in Wang Noi, Wang Chula area.
	The decentralized development to provincial areas (increased income).	3	Residents proposed community projects which could generate revenue and increase income for communities, for example, the establishment of occupational groups to grow mushrooms and sell them in markets, fish and frog farming, the occupation group for selling fish in the market. By have income, it would help to improve quality of life of residents in Wang Noi, Wang Chula area.

Perspectives	Issues	Scores	Results from collecting information
	The support of the extensive electrification to various localities	3	Resident proposed community project related to extensive electrification project to various localities, for example, the extensive electrification at Wang Noi district. However, residents commented that the process for extensive electrification takes a long time and needs to be adjusted.
		Average 3	
The Management Process Perspective	The coordination and participation with related organizations and other sectors.	3	The power development fund have coordinated with other sectors, for example, ERC, Local Administrative Organization on reporting the progress of operation and management of power development fund.
	The frequency of reporting the progress of the operation and. management of power development fund	1	The power development fund reported the progress of the operation and management to residents and related organizations twice a year.
	The channel for reporting the progress of the operation and	3	The power development fund had channels to report the progress of operation

Perspectives	Issues	Scores	Results from collecting information
	management of power development fund.		and management of power development fund through information board and website.
	The power development fund provide opportunity for related organizations or residents to participate in the operation and management of power development fund.	3	The power development fund supported the participation of residents in the operation and management of power development fund by organizing public forums at village or community level in order to propose community projects. The period of public forum was set up by power development fund.
	The operation and management of power development fund have transparency and accountability which provide benefit to all stakeholders.	3	The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information board and power development fund website which residents could examine and scrutinize on the existence of community project and

Perspectives	Issues	Scores	Results from collecting information
			the use of budget in each power development fund in designated area.
		Average 2.6	
The stakeholder perspective	The participation of stakeholders in the operation of power development fund, for example, attending public forum, the opportunity to propose community projects.	3	The stakeholders had the opportunity to participate in the operation of power development fund by attending a meeting where power development fund invited the stakeholders to inform them about the allocation of the budget and also the participation in the meeting to write and propose community projects.
	The opportunity for examination and scrutinze by stakeholders in the operation and management of power development fund.	3	The stakeholder said that they had the opportunity to examine and scrutinize the operation of power development fund on the budget that ERC allocated for formulating community projects. They received invitation letter from the power development fund to participate in the meeting that power development

Perspectives	Issues	Scores	Results from collecting information
			fund organized because the stakeholders would learn about the budget that would be allocated and the budget that was used in the previous fiscal year.
	The perception of knowledge on how to write and propose community projects.	3	The stakeholders had the opportunity in the meeting organized by the power development fund organized to teach how to write and propose community projects. After attending the meeting, the stakeholders would be able to write document and propose community projects. The stakeholders who had knowledge about how to write and propose community project would be able to teach other stakeholders who did not attend the meeting.
		Average 3	
The learning and development perspective	Providing knowledge /the number of organizing activities that support and	1	The power development fund supported and improved knowledge of employees or staff of power

Perspectives	Issues	Scores	Results from collecting information
	improve knowledge of employees at power development fund, for example, the regulation, the procurement regulation related to the operation and management of power development fund.		development fund at least once a year about accounting, financing including regulations and policy of procurement.
		Average 1	
The environment perspective	The significance of environment around the operation and management of power development fund under the support of power development fund through community projects.	3	Residents proposed community projects, for example, the study trip at the royal project about the environmental management which could apply knowledge in the Wang Noi community area. The study trip could raise awareness of the residents in the area on the significance of environmental management.
	The treatment and remedy affected by the operation of power plant under the support of power development	3	Residents proposed community projects, for example, the canal cleaning project affected by the operation of power plant. The project would provide

Perspectives	Issues	Scores	Results from collecting information
	fund through community projects.		benefit for communities to have clean water and clean canal for daily use.
	The solution to pollution problem under the support of power development fund through community projects.	3	Residents proposed community projects for canal cleaning project to solve the wastewater problem affected by the power plant. This community project that residents proposed could solve pollution problem which affected the water resources around Wang Noi area.
	Organizing activities to save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects to organize activities to save and protect natural resources; for example, the weed dredging projects which provided the opportunity for the community to reduce and protect natural resources because weed would destroy and affect natural resource around the operation of power plant.

Perspectives	Issues	Scores	Results from collecting information
	The participation in activities that save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects to purchase lawn mower which residents could use to protect natural resources, cut grass, and remove weeds. The community project would have to protect and save natural resources around the operation of power plant. The community project provided opportunity for residents to participate in activities for example remove weeds activities by residents in community.
		Average 3	
The social perspective	Social rehabilitation affected by the operation of power plant under the support of power development fund through community projects.	3	Residents proposed community projects related to social rehabilitation affected by the power plant; for example, road repair in front of Wang Noi Power Plant because the road was damaged from the transportation. The community project would help to rehabit social which

Perspectives	Issues	Scores	Results from collecting information
			received affect from the operation of power plant.
	The job creation under the support of power development fund through community projects.	3	Residents proposed community projects for job creation, for example, the establishment of occupational group to grow mushrooms which could create job for residents or local people from selling mushrooms, the occupation group to make Thai sweets, chili sauce, chicken farming for selling in the market. By selling those products, it would help to create job for residents in communities.
	The social cooperation under the support of power development fund through community projects	3	Residents proposed community projects for social cooperation in community; for example, the community projects to support traditional activities in villages around Wang Noi area. Due to the traditional activities that power development fund supported the budget, it would create the social

Perspectives	Issues	Scores	Results from collecting information
			cooperation among the residents and communities.
	Support of the health care and medical service under the support of power development fund through community projects.	3	Residents proposed community projects for health care and medical services; for example, the community projects which supported health promoting hospital, purchasing vehicles to transport patients, dental checkup equipment. The community projects would help to support and improve healthcare around communities area.
		Average 3	

4.4.3 Power Development Fund in Bang Pa Kong Power Plant

This table focuses on the issues, scores, and results from collecting information from the power development fund of Bang Pa Kong Power Plant.

Table 4.3 The issues, scores, and results from collecting information from the power development fund of Bang Pa Kong Power Plant.

Perspectives	Issues	Scores	Results from collecting information
The overall efficiency of operation and management	The role of power development fund supports society and communities which receive impact from the operation of power plant.	3	The power development fund supported residents to propose community projects about road repair, bridge repair projects affected during the operation of power plant. The repair project would help improve society and provide benefit for residents to use those facilities in their daily lives.
	The support of the use of renewable energy and technologies that have minimal impact on the environment.	3	Resident proposed community projects to use solar cell to generate electricity which can reduce pollution derived from the generating electricity by power plant. By propose community project, it will help communities concern on using renewable energy and that energy is less impact to environment. The community project was set up around Bangwao area.
	The decentralized development to	3	Residents proposed community projects to

Perspectives	Issues	Scores	Results from collecting information
	provincial areas (job creation).		create job for communities; for example, the training project, the career development project, the establishment of local occupational groups for sewing, for the elderly. The creation of occupation group could help residents in communities to have their own job.
	The decentralized development to provincial areas (increased income).	3	Residents proposed community projects which could generate revenue and increase income for communities, for example, community project to make dish washing soap and fabric softener. After making dish washing soap and fabric softener, the residents could sell the products to earn income.
	The support of the extensive electrification to various localities.	3	Residents proposed community project related to extend the electrification project to various localities; for example, the extended electrification around

Perspectives	Issues	Scores	Results from collecting information
			Bangwao area. The resident receive benefit from the extensive electrifications.
		Average 3	
The Management Process Perspective	The coordination and participation with related organizations and other sectors.	3	The power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization to report the progress of the operation and management of power development fund.
	The frequency of reporting the progress of the operation and management of power development fund.	3	The power development fund reported the progress of the operation and management to residents and related organizations every month.
	The channel for reporting the progress of the operation and management of power development fund.	3	The power development fund reported the progress of operation and management of power development fund through the annual report and website of power development fund.
	The power development fund provide opportunity for related	1	Bang Pa Kong Power Plant area had a problem about the participation of

Perspectives	Issues	Scores	Results from collecting information
	organizations or residents to participate in the operation and management of power development fund.		residents or people in public forums. They have no interest to participate in the public forum.
	The operation and management of power development fund have transparency and accountability which provide benefit to all stakeholders.	3	The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information in the annual report.
		Average 2.6	
The stakeholder perspective	The participation of stakeholders in the operation of power development fund, for example, attending public forum, the opportunity for propose community projects.	3	The stakeholders had the opportunity to participate in the operation and management of power development fund through the public forum that power development fund organized for residents to propose and vote for community projects in communities. Sometimes, the sub-district headmen and village headmen who were groups of stakeholders

Perspectives	Issues	Scores	Results from collecting information
			in the area would be representatives from the communities to attend public forum and propose and vote for community projects.
	The examination and scrutiny by stakeholders in the operation and management of power development fund.	3	The stakeholders could examine and scrutinize the operation and management of power development fund by organizing meeting that sub-district headmen and village headmen who were representatives of residents attend. In the meeting, power development fund would inform about the progress of community projects and the budget allocated to formulate community projects in fiscal year. The sub-district headmen and village headmen could examine and scrutinize the progress of community projects and the budget allocated to formulate community project of power

Perspectives	Issues	Scores	Results from collecting information
			development fund. After the meeting, sub-district headmen and village headmen would transfer information about the meeting to residents.
	The perception toward how to write and propose of community projects.	3	The sub-district headmen and village headmen who were representatives of stakeholders would receive invitation letter from the power development fund to participate in the meeting and learned how to write and propose community project. After the meeting, the sub-district headmen and village headmen would train residents how to write and propose community projects.
		Average 3	
The learning and development perspective	Providing knowledge/the number of organizing activities that support and improve knowledge of employees at power	1	The power development fund supported and improved knowledge of employees or staff at least once a year. Most trainings

Perspectives	Issues	Scores	Results from collecting information
	development fund, for example, the regulation, the procurement regulation related to the operation and management of power development fund.		were about accounting and financing.
		Average 1	
The environment perspective	The significance of environment around the operation and management of power development fund under the support of power development fund through community projects.	3	Residents proposed community projects on the significance of environmental management, for example, the trip to royal projects to study and learn about the significance of environment by the residents in Bang Pa Kong and Bang Wao areas.
	The treatment and remedy affected by the operation of power plant under the support of power development fund through community projects	3	Residents proposed community projects on how to create and use EM Ball which could be used in the water sources and provide treatment and remedy of the environment affected by the operation of power plant. By using EM ball, it would help reduce the pollution and provide treatment of

Perspectives	Issues	Scores	Results from collecting information
			water resources around the operation of power plant.
	The solution of pollution problem under the support of power development fund through community projects.	3	Residents proposed community projects to develop the efficiency of water system affected by the pollution where residents could have good quality water for use in agriculture.
	Organizing the activities to save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects to save and protect natural resources, for example, the project for young generation to participate in the environment camp to protect natural resources in the community. The young generation would have activities to participate which could help to save and protect natural resources.
	The participation in activities that save and protect natural resources under the support of power development	3	Residents proposed community projects, for example, the surveillance project to save and protect natural resources which

Perspectives	Issues	Scores	Results from collecting information
	fund through community projects.		provided the opportunity to become a guard to take care of and save natural resources. The residents who lived in the communities will have the opportunity to participate in activities and could help save and protect natural resources.
		Average 3	
The social perspective	Social rehabilitation affected by the operation of power plant under the support of power development fund through community projects.	3	Residents proposed community projects about purchasing water filter for communities to consume. Because around the operation of power plant, there was wastewater. Therefore, the water filter would help improve quality of society and communities.
	The job creation under the support of power development fund through community projects.	3	Residents proposed community projects for job creation, for example, dish washing soap and fabric softener. After making the soap and fabric softener, residents could have occupation by earning

Perspectives	Issues	Scores	Results from collecting information
			income from selling the products.
	The social cooperation under the support of power development fund through community projects.	3	Residents proposed community projects on social cooperation, for example, the community project which supported the traditional activities for residents to participate and cooperate with one another, for example, the traditional Chakra. The activities that supported by power development fund would help foster the social cooperation among residents in communities.
	A support of the health care and medical service under the power development fund through community projects	3	Residents proposed community projects for the health care and medical services, for example, the purchasing project for medical supplies to support health promoting hospital. The community project would help to increase the quality of health care and medical service in community.

Perspectives	Issues	Scores	Results from collecting information
		Average 3	

4.5 Power Development Fund Category B

4.5.1 Power Development Fund of North Bangkok Power Plant

This table focuses on the issues, scores, and results from collecting information from the power development fund of North Bangkok Power Plant.

Table 4.4 The issues, scores, and results from collecting information from the power development fund of North Bangkok Power Plant.

Perspectives	Issues	Scores	Results from collecting information
The overall efficiency of operation and management	The role of power development fund supports society and communities which receive impact from the operation of power plant.	3	The power development fund supported residents to propose community projects which helped alleviate impact from the operation of power plant, for example, the temple restorative and school reconditioning projects affected by the operation of power plant. The school and temple were affected by the operation of power plant, for example, the emission of pollution which impacted the conditions of

Perspectives	Issues	Scores	Results from collecting information
			temple and school. Therefore, the temple restorative and school reconditioning projects would contribute to social development affected by the operation of power plant.
	The support of the use of renewable energy and technologies that reduce impact on the environment.	1	The power development fund did not support community projects on the use of renewable energy project but power development fund organize field trips for residents who lived near power plant to visit royal projects to study about the renewable energy projects. By visiting royal projects, residents will have idea for create community projects which related to renewable energy.
	The decentralized development to provincial areas (job creation).	3	Residents proposed community projects which provided the opportunity to create jobs for communities, for example, the community project to

Perspectives	Issues	Scores	Results from collecting information
			find expert to train and provide knowledge on making bags and hats. From the community project, the resident could use those skill as occupation to make bags and hats. By make bags and hats could create job for residents in community around Bang Pai and Bang Sri Thong area.
	The decentralized development to provincial areas (increased income).	3	Residents proposed community projects which could generate revenue and increase income for communities, for example; find experts to train and provide knowledge on making bags, hats. Afterward, they could sell those products to local market and receive income from sell products.
	The support of extensive electrification to various localities	3	Residents proposed community projects to set up lights or electric lights in some communities and those electric light save

Perspectives	Issues	Scores	Results from collecting information
			energy, for example, in Bang Ao district. By extensives electrification, it would help residents in distants area to have electricity to use in their daily life.
		Average 2.6	
The Management Process Perspective	The coordination and participation with related organizations and other sectors.	3	The power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization by reporting the progress of the operation and management.
	The frequency of reporting the progress of the operation and management of power development fund.	3	The power development fund reported the progress on the operation and management to residents and related organizations once every three months.
	The channel for reporting the progress of the operation and management of power development fund.	3	The power development fund had channels to report the progress of operation and management of power development fund through the website of power development fund and through the meeting

Perspectives	Issues	Scores	Results from collecting information
			organized by the power development fund which provided the opportunity for sub-district headmen and village headmen to participate.
	The power development fund provide opportunity for related organizations or residents to participate in the operation and management of power development fund.	3	The power development fund supported the participation of residents in the operation and management of power development fund by organizing public forums for residents to propose and vote for community projects.
	The operation and management of power development fund have transparency and accountability which provide benefit to all stakeholders.	3	The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency and accountability of power development fund through the information on website and annual report of power development fund.
		Average 3	

Perspectives	Issues	Scores	Results from collecting information
The stakeholder perspective	The participation of stakeholders in the operation of power development fund, for example, attending public forum, the opportunity to propose community projects.	3	The stakeholder would have the opportunity to participate in public forum organized by the power development fund. Before the public forum, the power development fund would contact the stakeholders who were sub-district headmen and village headmen about the venue and date for the public forum. After sub-district headmen and village headmen knew the date and venue of public forum, they will inform residents and hold a meeting with them to brainstorm about what they wanted to do and propose for community projects. On the day of the public forum, the residents could propose and vote for community project at the public forum.
	The opportunity for examination and scrutiny by stakeholders	3	The stakeholders who were sub-district headmen and village headmen would be

Perspectives	Issues	Scores	Results from collecting information
	in the operation and management of power development fund.		invited by power development fund to attend the meeting where the power development fund would inform them about the use of budget to formulate community project and the progress of community projects in the fiscal year. The sub-district headmen and village headmen would be able to examine and scrutinize the operation and management of power development fund. After the meeting, the sub-district headmen and village headmen would transfer to the residents the information that they received.
	The perception of knowledge on how to write and propose community projects.	3	Stakeholders learned how to write and propose community projects from the day of the public forum. The power development fund would inform them how to propose and which documents were necessary

Perspectives	Issues	Scores	Results from collecting information
			to apply for community project. Sometime the sub-district headmen and village headmen who were groups of stakeholders would attend the meeting organized by power development fund to learn how to write and propose community projects. After the meeting, the sub-district headmen and village headmen would transfer to the residents the knowledge that they received.
		Average 3	
The learning and development perspective	Providing knowledge/the number of organizing activities that support and improve knowledge of employees at power development fund, for example, the regulation, the procurement regulation related to the operation and management of power development fund.	3	The power development fund supported and improved knowledge of employees or staff three times a year. The knowledge consists of accounting, procurement.

Perspectives	Issues	Scores	Results from collecting information
		Average 3	
The environment perspective	The significance of environment around the operation and management of power development fund under the support of power development fund through community projects.	3	Residents proposed community projects related to the significance of environment, for example, the formulation of environmental conservation project which provided the opportunity for residents to understand and learn about the significance of environment around Wat Kampang.
	The treatment and remedy of environment affected by the operation of power plant under the support by power development fund through community projects.	3	Residents proposed community projects, for example, the treatment and remedy project of the environment around the community area and also the conservation project of environment in communities.
	The solution of pollution problem under the support of power development fund through community projects.	3	Residents proposed community projects related to solution of pollution problem, for example, promoting activities of cleaning and reducing garbage and trash. By

Perspectives	Issues	Scores	Results from collecting information
			promoting the activities, it would help solve the pollution problems in communities.
	The organization of activities to save and protect natural resources under the support by power development fund through community projects.	3	Residents proposed community projects related to organizing activities to save and protect natural resources, for example, organizing the activities of cleaning and reducing garbage and trash, organizing the project on treatment and remedy of environment around the communities area, the formulate of environmental conservation project which provided the opportunity for residents to understand and learn about the significance of environment.
	The participation in activities to save and protect natural resources under the support of power development fund	3	Residents proposed community projects which provided the opportunity for them to participate in saving and protecting natural resources, for

Perspectives	Issues	Scores	Results from collecting information
	through community projects.		example, participation in big cleaning day project. Thanks to the big cleaning day project, residents would have a chance to participate in saving and protecting natural resources.
		Average 3	
The social perspective	Social rehabilitation affected by the operation of power plant under the support of power development fund through community projects.	3	Residents proposed community projects which rehabilitate society impacted from the operation of power plant. The big cleaning day would provide the opportunity to rehabilitate society affected by the operation of power plant.
	The job creation under the support of power development fund through community projects.	3	Residents proposed community projects for job creation, for example, the job training project and teaching project on how to make furniture and sell the products in the market. It could create job for residents in community.

Perspectives	Issues	Scores	Results from collecting information
	The social cooperation from the operation of power development fund under the support of power development fund through community projects.	3	Residents proposed community projects which were the social cooperation to provide opportunity for residents to participate in the survey to improve the electrical system in community area.
	Support of the health care and medical service by power development fund through community projects.	3	Residents proposed community projects for the health care and medical services, for example, purchasing of medical devices and equipment for health promoting hospital. The community project would help to improve healthcare and medical services in community.
		Average 3	

4.5.2 Power Development Fund in Nam Phong Power Plant

This table focuses on the issues, scores, and results from collecting information from the power development fund of Nam Phong Power Plant

Table 4.5 The issues, scores, and results from collecting information from the power development fund of Nam Phong Power Plant

Perspectives	Issues	Scores	Results from collecting information
The overall efficiency of operation and management	The role of power development fund supports society and communities which receive impact from the operation of power plant.	3	The power development fund supported residents to propose community projects related to social development affected by the operation of power plant, for example, the drainage improvement project affected by the operation of power plant. The improvement project will develop society to have drainage for use in communities. The society would be developed by the drainage community project.
	The support of the use of renewable energy and technologies that reduce impact on the environment	1	Residents did not propose for any community projects related to support the use of renewable energy and technologies.
	The decentralized development to provincial areas (job creation).	3	Residents proposed community projects which provide the opportunity to create job for communities, for example, Mud Mee Silk

Perspectives	Issues	Scores	Results from collecting information
			Weaving Group project. Thanks to the Weaving group, it would help residents to have knowledge on how to weave Mud Mee Silk and acquire occupation for residents. The Weaving Group Project was set up in Kok Sung, Kud Nam Sai area.
	The decentralized development to provincial areas (increased income).	3	Residents proposed community projects which could generate revenue and increase income for communities, for example, Mud Mee Silk Weaving Group project and sell the products in the market which could create income for residents. The Mud Mee Silk Weaving Group project was set up in Kok Sung, Kud Nam Sai area.
	The support of the extensive electrification to various localities	3	Residents proposed community projects related to extend the electrification project to various localities for use in agriculture

Perspectives	Issues	Scores	Results from collecting information
			project around Nam Phong area. However, before power development fund supported budget for the extension of electricity project, the staff of power development fund would conduct survey of areas to make sure that they lack electricity and need extended electricity.
		Average 2.6	
The Management Process Perspective	The coordination and participation with related organizations and other sectors.	3	The power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization by reporting the progress of the operation and management of power development fund.
	The frequency of reporting the progress of the operation and management of power development fund.	3	The power development fund reported the progress of the operation and management to residents and related organizations every quarter in a year.
	The channel for reporting the progress of	3	The power development fund had channels to report

Perspectives	Issues	Scores	Results from collecting information
	the operation and management of power development fund.		the progress of operation and management of power development fund through website of power development fund and also through FACEBOOK of power development fund.
	The power development fund provide the opportunity to related organizations or residents to participate in the operation and management of power development fund.	3	The power development fund supported the participation of residents in the operation and management of power development fund by allowing residents to participate in public forums to propose and vote for community projects.
	The operation and management of power development fund have transparency and accountability which provide benefit to all stakeholders.	3	The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information on website.
		Average 3	
The stakeholder perspective	The participation of stakeholder in the operation of power development fund,for	3	The stakeholders participated in public forum organized by the power development fund. Before

Perspectives	Issues	Scores	Results from collecting information
	example, attending public forum, the opportunity to propose community projects.		participating in public forum, the sub-district headmen and village headmen who were groups of stakeholders would hold pre-meeting with residents to discuss on what they wanted to propose to formulate community projects. When the public forum was held, the residents would propose the community projects that needed to be formulated in the communities. It would also reduce conflict among residents and stakeholders of voting and proposing community project. However, recently sub-district headmen and village headmen said that the number of resident who attend public forum were fewer than it should be.
	The opportunity to examine and scrutinize by stakeholders in the operation and	1	From the interviews with sub-district headman and village headmen who were groups of stakeholders and

Perspectives	Issues	Scores	Results from collecting information
	management of power development fund.		leaders of communities, they said that the residents around the Nam Phong area did not have the opportunity to examine or investigate the process to establish community projects that they have proposed because the community projects were managed by the Community Development Committee (CDC) and they did not let residents know about the process of doing or formulating community projects.
	The perception of knowledge on how to write and propose of community projects.	3	The stakeholders had the opportunity to learn to write and propose community projects from the employees of power development fund who taught them how to write and propose community projects when public forum was organized. Sometime, the sub-district headmen and village headmen who

Perspectives	Issues	Scores	Results from collecting information
			were groups of stakeholders also taught residents on how to write and propose community projects.
		Average 2.33	
The learning and development perspective	Providing knowledge/ the number of organizing activities that support and improve knowledge of employees at power development fund, for example, the regulation, the procurement regulation related to the operation and management of power development fund.	1	The power development fund supported and improved knowledge of employees or staff of power development fund at least once a year on accounting and procurement.
		Average 1	
The environment perspective	The significance of environment around the operation and management of power development fund under the support of power development fund through community projects.	3	Residents proposed community projects by using the budget from power development fund to develop the Sufficiency Economy Center established under the theory of the late King Rama 9. The Sufficiency Economy

Perspectives	Issues	Scores	Results from collecting information
			Center aimed to provide the residents in communities with the understanding of the significance of environment and sustainable development in the communities, especially in the environment perspective.
	The treatment and remedy affected by the operation of power plant under the support of power development fund through community projects.	3	Residents proposed community projects under the drainage improvement project around the communities near the operation of power plant. Because the drainage around the area was effected by the operation of power plant. Therefore, the drainage improvement project would help solve the problem from the power plant.
	The solution to pollution problem under the support of power development fund through community projects.	3	Residents proposed community projects under the canal dragging project affected by pollution. The canal dragging project would help communities

Perspectives	Issues	Scores	Results from collecting information
			reduce the problem of water pollution.
	Organizing activities to save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects to organize activities to search for water supply to use in agriculture project. Because around Nam Phong Power Plant, there was wastewater problem from the operation of power plant. Therefore, the activities to search for water supply would help solve the problem and have water resources for use in communities.
	The participation of activities to save and protect natural resources under the support of power development fund through community projects.	3	Residents proposed community projects which provided the opportunity to participate in activities to search for water supply to use in agriculture project. Because around Nam Phong Power Plant, they faced the wastewater problem from the operation of power plant. Therefore, the activities to search for

Perspectives	Issues	Scores	Results from collecting information
			water supply would help solve the problem and have water resources for use in communities.
		Average 3	
The social perspective	Social rehabilitation affected by the operation of power plant under the support of power development fund through community projects.	3	Residents proposed community projects for social rehabilitation affected by power plant, for example. public health for residents who live around the operation of power plant. The community project which support public health of residents would help to improve on social rehabilitation which get effect from the operation of power plant.
	The job creation under the support of power development fund through community projects.	3	Residents proposed community projects for job creation through establishment of Mud Mee Silk Weaving Group to make Mud Mee Silk. By the establishment of Mud Mee Silk Weaving Group to make Mud Mee Silk, it

Perspectives	Issues	Scores	Results from collecting information
			could create job for residents in community.
	The social cooperation under the support of power development fund through community projects.	3	Residents proposed community projects for social cooperation in community, for example, the study trip project to learn about the traditional northeastern culture which provides the opportunity for residents to participate in.
	Support of the health care and medical services by power development fund through community projects.	3	Residents proposed community projects for the health care and medical services. The community projects that supported health promoting hospital are, for example, procurement of mosquito killing spray which helped reduce dengue fever disease in communities, procurement project for blood glucose test meter to use in health promoting hospital.The community project would help to improve the quality of health care and medical

Perspectives	Issues	Scores	Results from collecting information
			service which helped to improve quality of life of residents in community.
		Average 3	

4.5.3 Power Development Fund of Ratchaburi Electricity Generating Company Limited

This table focuses on the issues, scores, and results from collecting information from the power development fund of Ratchburi Electricity Generating Company Limited

Table 4.6 The issues, scores, and results from collecting information from the power development fund of Ratchburi Electricity Generating Company Limited

Perspectives	Issues	Scores	Results from collecting information
The overall efficiency of operation and management	The role of power development fund supports society and communities which receive impact from the operation of power plant.	3	The power development fund supported residents to propose community project which could contribute to social development from the operation of power plant, for example, the road repair community project affected by the transport of vehicle for use at

Perspectives	Issues	Scores	Results from collecting information
			power plant. The road repair would benefit communities and society to have social development in necessary facilities.
	The support of the use of renewable energy and technologies that reduce impact on the environment.	1	Residents did not propose community projects which supported the use of renewable energy.
	The decentralized development to provincial areas (job creation).	3	Residents proposed community projects which provided the opportunity to create job for communities, for example, purchasing materials for weaving and making loincloth. Residents were provided with jobs from weaving and loincloth making.
	The decentralized development to provincial areas (increased income).	3	Residents proposed community projects which could generate revenue and increase income for communities, for example, career development project to

Perspectives	Issues	Scores	Results from collecting information
			purchase for loincloth making. The residents could sell those products to customers to receive income to their community.
	The support of the extensive electrification to various localities.	3	Residents proposed community projects to support the extensive electrification around the operation of Ratchaburi Electricity Generating Company Limited and to set up light bulbs in distant areas. The extensive electrification project would help residents to have electricity to use on their daily life.
		Average 2.6	
The Management Process Perspective	The coordination and participation with related organizations and other sectors.	3	The power development fund coordinated with other sectors, for example, ERC, Local Administrative Organization by reporting the progress of the operation and

Perspectives	Issues	Scores	Results from collecting information
			management of power development fund and also invited related organizations to participate in discussion on the operation and management of power development fund.
	The frequency of reporting the progress of the operation and management of power development fund.	3	The power development fund reported the progress on the operation and management to residents and related organizations at least four times a year (once every quarter).
	The channel for reporting the progress of the operation and management of power development fund.	3	The power development fund had channels to report the progress of operation and management of power development fund through website and Facebook of power development fund.
	The power development fund provide opportunity for related organizations or residents to participate in	3	The power development fund supported the participation of residents in the operation and

Perspectives	Issues	Scores	Results from collecting information
	the operation and management of power development fund.		management of power development fund by promoting public forums for residents to participate in the forum to propose and vote for community project.
	The operation and management of power development fund have transparency and accountability which provide benefits to all stakeholders.	3	The power development fund provided information for residents or stakeholders to scrutinize and examine the transparency of power development fund through the information on website and Facebook of power development fund.
		Average 3	
The stakeholder perspective	The participation of stakeholders in the operation of power development fund, for example, attending public forum, the opportunity to propose community projects.	3	The stakeholders had the opportunity to participate in the public forum organized by the power development fund. The sub-district headmen and village headmen were groups of stakeholders who became the representatives of

Perspectives	Issues	Scores	Results from collecting information
			communities to attend public forum to propose the project. Before organizing public forum, the sub-district headmen and village headmen held meeting with residents in communities to ask what they wanted to propose for community projects. When residents decided what they wanted, the sub-district headmen and village headmen would attend public forum and share about what residents in the village wanted to propose for community project.
	The opportunity for examination and scrutiny by stakeholders in the operation and management of power development fund.	3	The stakeholders said that they had the opportunity to examine and scrutinize the operation and management of power development fund and also budget that was allocated to residents to formulate community

Perspectives	Issues	Scores	Results from collecting information
			projects. The stakeholders were able to examine and scrutinize the operation and management of power development fund through the power development fund's published newsletters.
	The perception of knowledge on how to write and propose community projects.	3	The stakeholders said that they received knowledge on how to write and propose community projects from the employees of power development fund who have knowledge on how to propose community projects. Sometimes, sub-district headmen, and village headmen also became group of stakeholders who had knowledge on how to write and propose community projects.
		Average 3	
The learning and development perspective	Providing knowledge/number of organizing activities that	3	The power development fund supported and improved knowledge of

Perspectives	Issues	Scores	Results from collecting information
	support and improve knowledge of employees at power development fund, for example, the regulation, the procurement regulation related to the operation and management of power development fund.		employees or staff of power development fund at least four or five times a year by providing on finance, accounting, procurement, and internal audit.
		Average 3	
The environment perspective	The significance of environment around the operation and management of power development fund under support of power development fund through community projects.	3	Residents proposed community projects on the significance of environmental management, for example, the study trip on community waste management to enhance sustainability for communities and raise awareness to the residents around power development fund area on the significance of environment.
	The treatment and remedy affected by the operation of power plant under support of power development	3	Residents proposed community projects related to landscape reconditioning projects

Perspectives	Issues	Scores	Results from collecting information
	fund through community projects.		affected by the operation of power plant. Because the landscape around power plant might be affected by the operation of power plant, therefore, the landscape reconditioning would be able to treat and remedy the impact from the operation of power plant.
	The problem to solve pollution under support of power development fund through community projects.	3	Residents proposed community projects related to wastewater treatment projects in public canal affected by the operation of power plant. From the community project, the resident would have clean water for daily use.
	The organization of activities to save and protect natural resources under support of power development fund through community projects.	3	Residents proposed community projects by organizing activities to save and protect natural resources, for example, study trip project to learn about junk management for sustainable

Perspectives	Issues	Scores	Results from collecting information
			community by letting residents to learn how to manage and save the natural resources from management of junk in communities, purchasing project for trash bin for use in communities, canal dredging project to have clean water resources for use in communities.
	The participation in activities that save and protect natural resources under support of power development fund through community projects.	3	Residents proposed community projects by organizing activities, for example, study trip project which provide the opportunity for the residents to participate in the activities for learning and studying on the junk management for sustainable community. Moreover, the residents would learn how to save and protect natural resources.
		Average 3	

Perspectives	Issues	Scores	Results from collecting information
The social perspective	Social rehabilitation affected by the operation of power plant under support of power development fund through community projects.	3	Residents proposed community projects related to social rehabilitation affected by the power plant, for example, water improvement project. The water system was affected by the operation of power plant. Therefore, with community project for water improvement, it would help develop quality of water for residents to consume. The good quality water would also help improve the quality of society as well.
	The job creation under support of power development fund through community projects.	3	Residents proposed community projects for job creation, for example, purchasing materials for weaving and making loincloth which could create job for residents who could sell the products in the market.

Perspectives	Issues	Scores	Results from collecting information
	The social cooperation under support of power development fund through community projects.	3	Residents proposed community projects for social cooperation in communities, for example, the community project which promoted and supported sport activities. The sport activities would enhance social cooperation between people who lived around the operation of power development fund. Sort activities would create social cooperation among people.
	A support of the health care and medical services by power development fund through community projects.	3	Residents proposed community projects for the health care and medical services, for example, support of health promoting hospital procurement of medical equipment, rebuilding and renovating hospital; conference room, and purchasing of equipment;

Perspectives	Issues	Scores	Results from collecting information
			such as desks, computers to use in the hospital.
		Average 3	

4.6 The Summary of the Scores and Weight of Power Development Fund in Category A and B

The researcher focused on point and weight of indicators by separation under each perspective. In each perspective, there were different weights depending on the significance of the operation and management of power development fund. The researcher set the weight of 20% for the overall efficiency of operation and management, management, and the stakeholder perspectives. The researcher set the weight of 10% for the learning perspective and set the weight of 15 % for the environment and social perspectives.

The researcher set the weight of 20% for the overall efficiency of operation and management, management, stakeholder perspectives because those perspectives were every important for the operation and management of power development fund. The power development fund would be more effective and efficient in the operation and management under those three perspectives. For the weight of 10 % for learning perspective, the researcher was concerned that learning perspective was less significant in the operation and management of power development fund. Therefore, the researcher set the weight indicator of 10%. For the weight of 15% for environment and social perspectives, the researcher was concerned that the operation and management of power development fund were related to the environment and society through the community projects that residents proposed and the existing community projects would provide benefit to the environment and society. Therefore, the researcher set the weight of 15 % for the two perspectives.

4.6.1 The power development fund of Mae Mao power plant

The table below shows the score, weight of indicator, and weighted of the power development fund of Mae Moh Power Plant

Table 4.7 The score, weight of indicator, and weighted of the power development fund of Mae Moh Power Plant

Perspective	Score	Weight of indicator	Weighted
The overall efficiency of operation and management perspective	2.6	20	0.52
The management perspective	3	20	0.60
The stakeholder perspective	3	20	0.60
The learning perspective	2	10	0.20
The environment perspective	3	15	0.45
The social perspective	3	15	0.45
Total		100	2.82

4.6.2 The Power Development Fund of Wang Noi Power Plant

The table below shows the score, weight of indicator, and weighted of the power development fund of Wang Noi Power Plant

Table 4.8 The score, weight of indicator, and weighted of the power development fund of Wang Noi Power Plant

Perspective	Score	Weight of indicator	Weighted
The overall efficiency of operation and management perspective	3	20	0.60
The management perspective	2.6	20	0.52
The stakeholder perspective	3	20	0.60
The learning perspective	1	10	0.10
The environment perspective	3	15	0.45
The social perspective	3	15	0.45
Total		100	2.72

4.6.3 The Power Development Fund of Bang Pa Kong Power Plant

The table below shows the score, weight of indicator, and weighted of the power development fund of Bang Pa Kong Power Plant

Table 4.9 The score, weight of indicator, and weighted of the power development fund of Bang Pa Kong Power Plant

Perspective	Score	Weight of indicator	Weighted
The overall efficiency of operation and management perspective	3	20	0.60
The management perspective	2.6	20	0.52
The stakeholder perspective	3	20	0.60
The learning perspective	1	10	0.10
The environment perspective	3	15	0.45
The social perspective	3	15	0.45
Total		100	2.72

4.6.4 The Power Development Fund of North Bangkok Power Plant

The table below shows the score, weight of indicator, and weighted of the power development fund of North Bangkok Power Plant

Table 4.10 The score, weight of indicator, and weighted of the power development fund of North Bangkok Power Plant

Perspective	Score	Weight of indicator	Weighted
The overall efficiency of operation and management perspective	2.6	20	0.52
The management perspective	3	20	0.60
The stakeholder perspective	3	20	0.60
The learning perspective	3	10	0.30
The environment perspective	3	15	0.45
The social perspective	3	15	0.45
Total		100	2.92

4.6.5 The Power Development Fund of Nam Phong Power Plant

The table below shows the score, weight of indicator, and weighted of the power development fund of Nam Phong Power Plant

Table 4.11 The score, weight of indicator, and weighted of the power development fund of Nam Phong Power Plant

Perspective	Score	Weight of indicator	Weighted
The overall efficiency of operation and management perspective	2.6	20	0.52
The management perspective	3	20	0.60
The stakeholder perspective	2.33	20	0.46
The learning perspective	1	10	0.10
The environment perspective	3	15	0.45
The social perspective	3	15	0.45
Total		100	2.58

4.6.6 The Power Development fund of Ratchaburi Electricity Generating Company Limited

The table below shows the score, weight of indicator, and weighted of the power development fund of Ratchaburi Electricity Generating Company Limited

Table 4.12 The score, weight of indicator, and weighted of the power development fund of Ratchaburi Electricity Generating Company Limited

Perspective	Score	Weight of indicator	Weighted
The overall efficiency of operation and management perspective	2.6	20	0.52
The management perspective	3	20	0.60
The stakeholder perspective	3	20	0.60
The learning perspective	3	10	0.30
The environment perspective	3	15	0.45
The social perspective	3	15	0.45
Total		100	2.92

4.6.7 The average score of each perspective in power development fund category A

The table below shows the average score in each perspective of the power development fund in category A

Table 4.13 The average score of each perspective in power development fund category A

Perspective	Power Development Fund of Mae Mao Power Plant	Power Development Fund of Wang Noi Power Plant	Power Development Fund of Bang Pa Kong Power Plant	Average Score
The overall efficiency of operation and management perspective	2.6	3	3	2.86
The management perspective	3	2.6	2.6	2.73
The stakeholder perspective	3	3	3	3
The learning perspective	2	1	1	1.33
The environment perspective	3	3	3	3
The social perspective	3	3	3	3

4.6.8 The average score of each perspective in power development fund category B

The table below shows the average score in each perspective of the power development fund in category B

Table 4.14 The average score of each perspective in power development fund category B

Perspective	Power Development Fund of North Bangkok Power Plant	Power Development Fund of Nam Phong Power Plant	Power Development Fund of Ratchaburi Electricity Generating Company Limited	Average Score
The overall efficiency of operation and management perspective	2.6	2.6	2.6	2.6
The management perspective	3	3	3	3
The stakeholder perspective	3	2.33	3	2.77
The learning perspective	3	1	3	2.33
The environment perspective	3	3	3	3

Perspective	Power Development Fund of North Bangkok Power Plant	Power Development Fund of Nam Phong Power Plant	Power Development Fund of Ratchaburi Electricity Generating Company Limited	Average Score
The social perspective	3	3	3	3

CHAPTER 5

MANAGEMENT MODEL FOR THE POWER DEVELOPMENT FUND

This study has the objectives to evaluate the operation and management of power development fund in Thailand and to propose an appropriate model for sustainable management of power development fund in Thailand. Data is collected from interviews with key informants namely: the Energy Regulatory Commission (ERC), Power Development Fund department, managers and employees of power development fund in each category A and B, the sub-district headmen, and village headmen who live around the power plant in each category. From the data collection, useful information is derived that can be used to improve the operation and management of power development fund by applying the Sustainability Balanced Scorecard theory (SBSC) consisting of six perspectives namely: the overall efficiency of operation and management, stakeholders, internal management, learning and development, environmental and social perspectives. This chapter will suggest the appropriate operation and management of power development fund in category A and B in each perspective under the SBSC theory and from the recommendations, the model is therefore addressed.

5.1 Recommendations of the Overall Efficiency of Operation and Management Perspective of Power Development Fund in Category A

For the overall efficiency of operation and management perspective, residents have received the disbursement of money from the power development fund to formulate community projects. However, from the interviews, it was found that some

power development fund have faced problems of the budget disbursement plan for proposed community projects. When residents propose the community projects and get approval from Community Development Committee (CDC), the process of disbursing budget to formulate community projects takes a long time. With the problem of disbursement of budget, for example, the power development fund of Wang Noi Power Plant has faced the problem. The power development fund and Community Development Committee should set up a meeting to discuss with the ERC about the regulation that is deployed for the process of budget disbursement to residents. If possible, the regulation on the budget disbursement may be updated and made applicable for power development fund.

From the interviews with power development fund in designated areas, it was found that residents who live around power development fund of Mae Moh Power Plant do not propose community projects which support the use of renewable energy and technologies. Therefore, the suggestions are that power development fund in designated area should motivate residents by providing knowledge on the importance of renewable energy and technologies in the area and the benefit that residents will receive by having renewable energy technologies in communities' area.

5.2 Recommendations of the Overall Efficiency of Operation and Management Perspective of Power development fund Category B

From the interviews, it was found that some power development fund, for example, the power development fund of North Bangkok Power Plant and power development fund of Nam Phong Power Plant face the problems of the allocation of budget by the Community Development Committee (CDC) to formulate community projects. Because from the interviews, the sub-district headmen and village headmen said that the CDC seems to unfairly allocate budget to other locations. The CDC should allocate budget with awareness of the problem that residents in communities may face. The CDC may cooperate with the sub-district headmen and village headmen who know the exact problems in the communities and the CDC can set up budget plan and analyze

budget that will be allocated to solve problems. The budget plan should be mainly focused on solving severe problems that need to be solved in the communities. The CDC and sub-district headmen and village headmen may use information to allocate the budget to formulate community project. After setting up the budget plan, the budget will be allocated to residents. The power development fund should inform all residents about the exact budget that they will receive in a fiscal year and give them the opportunity to monitor and examine the budget plan. The power development fund in designated area may use the website of power development fund to be a channel to inform the allocation of budget in each fiscal year.

From the interviews, it was found that for power development fund of Nam Phong Power Plant and power development fund of Ratchaburi Electricity Generating Company Limited, the residents do not propose community projects related to renewable energy and technologies. The power development fund in designated area should motivate residents by providing knowledge on the importance of renewable energy and technologies in the area and the benefit the residents will receive by having renewable energy and technologies.

From the recommendations of the overall efficiency of operation and management perspective, it will help residents to have community projects which provide benefit for communities, contribute to social development affected by the operation and management of power plant, improve quality of life through job and income creation, create renewable energy and technologies that have minimal impact on environment, and undertake electrification extension for distant areas.

5.3 Recommendations of the Management Process Perspective of Power Development Fund in Category A

From the interviews with the employees of power development funds in selected category A and B, they suggest that regulations of Energy Regulatory Commission which have assigned to all power development funds are not applicable for their power development fund's operation and management. The policy and regulations used for

power development fund of Mae Moh Power Plant and Wang Noi Power Plant should be revised because the policy and regulation are not related and do not cover the operation and management of power development fund; The policy and regulation that ERC has deployed to all power development fund in designated area seem not to be applicable. Because each power development fund has different geography and life style of residents, therefore, the Energy Regulatory Commission should reconsider the policy and regulations assigned to all power development funds. For example; the ERC may examine and scrutinize the regulation before deploying it to power development fund. Because from the interviews, it was found that power development fund in designated area face problems of the regulations that are not applicable and suitable to use with power development fund in that area.

The Energy Regulatory Commission who manages the operation and management of power development fund should streamline the approval process of community projects, for example, the process to get document from the government for approval to do community projects. Because sometimes when residents propose community projects such as the extension of electricity project; the power development fund require residents to get document of approval from PEA. But the process to get the document takes a long time. Therefore, the residents may not be able to formulate community projects in the fiscal year as they are required to prepare all necessary documents to propose community projects within 30 days.

From the interviews, it was found that some power development fund receive comments from residents on the transparency of the operation and management of power development fund, for example, the power development fund, Community Development Committee (CDC), and Tambon Development Committee (TDC) allocate the budget to residents in a specific area but not to residents or communities affected by the power plant. Therefore, the ERC should examine and investigate the performance of all power development fund in each area and try to find ways to solve the transparency issue.

Most community projects proposed by residents are short-term and not continual. Therefore, the power development fund should solve this problem by setting up measures and requirement for the residents who want to propose community projects

to propose long-term projects. This will help residents to formulate qualified community projects. Because recently the community projects do not provide much benefit because they are short-term. When the fiscal year ends, the projects then ends accordingly. The long-term community projects will help contribute to the development of communities and keep continuous improvement on doing project.

From the interviews, it was found that there are cooperation and unity problems between public and government sector representatives. The public and government sector representatives do not efficiently work together to make the operation and management of power development fund in designated area successful. The Energy Regulatory Commission (ERC) should solve and focus on the cooperation problems by becoming a middle person to solve the communication problem and related problem that happen between the public and government representatives of CDC. From the interviews with key informants, it was found that there are unity problems between public and government representatives. Recently, the public sector's concern is on the management of budget which provides the benefit in their own area but not to the whole communities. At the same time, the government sector focuses on the management of budget. Therefore, there will be some problems of the management of power development fund in designated area. When public forums are organized, the public and government representatives should coordinate and manage by providing the opportunity to all residents in communities to participate in proposing community projects and the community projects must provide benefit to all residents in the communities.

From the interviews, it was found that as for the results from the evaluation of community projects by power development fund, the fund do not investigate and examine the performance of all community projects but only some community projects. From the investigation and examination in some community projects, the power development fund are not able to know all the problems that may happen while conducting community projects in the communities. Therefore, the power development fund must follow up and evaluate all community projects. All community projects must be evaluated after the end of the projects at each fiscal year end. As the power

development fund in designated area do not have enough staff to monitor all community projects, therefore, the ERC and power development fund in designated area should find a solution by setting up a third party as a team to investigate and follow up all community projects in Thailand.

5.4 Recommendations of the Management Process Perspective of Power Development Fund in Category B

The power development fund should improve the process of publicizing and disseminating the organization of public forums for residents in the areas. For example, power development fund of North Bangkok Power Plant faces this problem. Therefore, the power development fund should motivate residents to participate in public forums. Before organizing public forums, the power development fund can use broadcasting vehicle to inform residents in the area about the public forum. By using the broadcasting vehicle, it will reach all residents who live around the areas. Moreover, the power development fund can set up a signboard to motivate residents to participate in the public forum. The more residents who participate in the public forum, the more number of qualified community projects will be proposed in the area.

From the interviews, it was found that some power development fund such as power development fund of North Bangkok Power Plant has received comments from residents on the transparency of the operation and management of power development fund, for example, the allocation of budget for residents to formulate community projects but the budget is not thoroughly allocated to all communities. Instead, the budget is allocated in a specific area. There are also problems on the limited participation of residents in public forums and the opportunity to propose community projects. The rest of residents in the area do not have the opportunity to propose community projects. The proposal of community projects has been limited for some groups of people. Therefore, the Energy Regulatory Commission should set up a team to examine and solve the transparency problem of the operation and management of power development fund. From the interviews, it was found that ERC already set up a team to examine the operation and management of power development fund. However,

the team set up by the ERC does not undertake visits to all power development fund but to some selected power development funds. Therefore, the ERC should set up a team to examine and investigate the operation and management for all power development fund.

From the suggestion on the management process, it will help power development fund to solve the reporting problem of the progress of the operation and management to residents and related organizations and also help power development fund solve the participation problem by finding solutions to motivate residents to participate in public forums to propose for community projects.

5.5 Recommendations of the Stakeholder Perspective of Power Development Fund in Category A

From the interviews, it was found that power development fund of Mae Moh Power Plant have faced problems of the ability and knowledge of residents to propose community projects and to use the budget that they receive to formulate community projects. The Energy Regulatory Commission and power development fund in each area should support and assist the residents on how to propose community projects by setting up a public forum to train residents on how to prepare document and propose community projects. By providing knowledge on how to prepare and propose document for residents, the ERC and the power development fund need to ensure that the employees of power development fund are efficient and able to communicate and inform residents on how to write document to propose community projects. Therefore, the ERC and power development fund in designated area need to support training and provide knowledge to the employees of power development fund on how to propose community project and also other knowledge which will benefit the employees to inform to residents.

Power development fund of Wang Noi Power Plant has faced the participation problem of residents. Therefore, there should be encouragement to residents to participate in public forums so as to propose community projects. Power development

fund in designated area should also inform residents about the timetable of public forums in the area. In the past, power development fund in designated area used to motivate residents by giving them 50 baht to participate in public forums and this helped motivate residents to participate in public forums and the number of residents who participate increased. But recently, the plan is no longer applicable. Because power development fund in designated area do not have the budget to support the organization of public forums. The power development fund should reconsider the strategy. Moreover, the fund may not give money to residents but may provide or support some food or snack for residents who come to participate in public forums. The power development fund may organize the activities to promote the power development fund and the benefits of having community projects in the area which will motivate residents to attend public forums to vote and propose community projects. From the participation in the public forum, the stakeholders will have a chance to vote and propose community projects that can solve the problems derived from the operation of power plants in the communities.

5.6 Recommendations of the Stakeholder Perspective of Power Development Fund in Category B

For the perception problem of residents toward community projects set up in the area, it was found that, in some areas, for example, around the power development fund of North Bangkok Power Plant, residents who live around the area of the power plant do not know about community projects in the area. The problem may derive from the communication problem between power development fund and residents. Therefore, after the community projects get approval from the Community Development Committee (CDC), the power development fund should inform all residents in the area. For power development funds in category B, for example, the power development fund of Ratchaburi Electricity Generating Company Limited does not have a signboard to inform residents about community projects. Therefore, power development fund should set up a signboard to let residents know about community

projects. The power development fund in designated area may improve the intranet and internet computer system of power development fund which help increase the efficiency of updating information about community projects to residents. The power development fund may improve the website of power development fund in designated area to be a channel to inform and provide information about the operation and management of power development fund to residents.

From the interviews, it was also found that they have communication problems between power development fund and community or residents around the power plant, for example, the progress of the operation and management of power development fund and the community projects in designated area. Some residents are not aware of the community projects formulated in designated area. Therefore, the power development fund department should create and bring information technology system, for example, the program that residents can sign up to check and track the community project formulated in community area. The residents can also check and track the progress of the community projects that they have proposed. Moreover, the program may be a tool to communicate and exchange information between power development fund, the Community Development Committee (CDC), people who propose community projects, stakeholders, and residents in designated area.

From the interviews, it was found that after residents receive the approval to formulate community projects, they face the problems in the case where the community project needs to hire or purchase some materials but residents lack knowledge of procurement and purchase. Therefore, they need advice from a knowledgeable person but power development fund in designated area cannot help and give advice to them. Thus, the researcher recommends that after the community project's approval, the power development fund should guide and assign a knowledgeable person to advise residents on doing community projects.

5.7 Recommendations of the Learning and Development Perspective of Power Development Fund in Category A

From the interviews, it was found that the Energy Regulatory Commission, power development fund in designated area, for example, the power development fund of Mae Moh Power Plant should be concerned with the welfare that the employees of power development funds receive because they are not government officers. So, the welfare and benefits that they receive are less than that of government officers. In some power development fund, the employees receive only social security welfare care to support on welfare. The ERC and the power development fund in designated area should find solutions to support welfare and benefits which can help motivate the employees to work for power development fund. The ERC may work together with power development fund in designated area to increase the social welfare and medical welfare for the employees of power development fund which will motivate them to work. The social welfare and medical welfare provided to the employees of power development fund must be under labor protection law. By providing the social welfare and medical welfare for the employees, it will help reduce the turnover problem of employees.

The employees of power development fund of Mae Moh Power Plant said that the number of trainings which power development fund has provided are not much and the employees need power development fund to support more trainings. Therefore, the power development fund should be concerned with training issues for the employees. Because if they gain a lot of knowledge and training, their working ability and efficiency will then increase. The power development fund may formulate the training plan for each position in power development fund. The training plan will be used as a guideline for the employees to choose the training related to their own responsibility in power development fund.

5.8 Recommendations of the Learning and Development Perspective of Power Development Fund in Category B

The power development fund of Nam Phong Power Plant faces the problem of welfare of the employees or staff of power development fund because it is different from that of the officers at Office of Energy Regulatory Commission Regional Office.

Therefore, it leads to less motivation of the employees toward their responsible duties and the power development fund of Nam Phong Power Plant does not have Key Performance Indicator to evaluate the performance of its employees. Recently, the employees of power development fund have only job description for their own responsibility.

The power development fund of Ratchaburi Electricity Generating Company Limited faces the problem of the lack of welfare that employees or staff receive from working at power development fund. The employees of power development fund receive only social security support card.

From the interviews, it was found that some power development fund, for example, the power development fund of Nam Phong Power Plant does not have job description and work instruction for the employee in each position. The power development fund should set up and identify the scope of work to assign for each employee that helps the employees improve the effectiveness and efficiency of work. Moreover, the power development fund still have not had Key Performance Indicator (KPI) to evaluate and measure the performance or duty of the employees of power development fund. Therefore, the power development fund should set up Key Performance Indicator (KPI) and the details of the indicator's list should relate to and match the scope of work and job description of the employee in each position in power development fund.

The benefits of Key Performance Indicator (KPI) are to help power development fund to have clear idea on how to criticize and evaluate roles and responsibility of the employees. The indicators listed in Key Performance Indicator (KPI) are about the details and roles of each employee and the employees will receive feedback on their performance from power development fund, e.g. the good performance from Key Performance Indicator (KPI), the achievement and reward that they can receive. By applying Key Performance Indicator (KPI), it will help employees to have motivation to do their job. The example of the KPI includes the number of community projects that

power development fund has supported residents to propose community projects per year.

The power development fund in designated area may develop the human resources development plan each year which become a plan to support and improve the potential and ability of employees on the duties of power development fund, Moreover, the power development fund in designated area may criticize and evaluate the number of employees required by power development fund to work there.

Power development fund of Nam Phong Power Plant and the power development fund of Ratchaburi Electricity Generating Company Limited face the problem of the welfare whereby the employees of power development fund receive less welfare than that of the officers of the Energy Regulatory Commission Regional Office because the employees who work at power development fund office are not government officers. Due to this reason, it will have impact on work motivation. Therefore, the Energy Regulatory Commission and the power development fund in designated area should discuss the welfare and benefits that the employees of power development fund receive and find solution to the welfare problems and benefits. The welfare provided to the employees of power development fund in designated areas must be under labor protection law and under the budget of power development fund. The welfare must motivate employees to work for power development fund and help decrease the turnover problem of employees.

The suggestion on learning and development will raise concern of the ERC and power development fund in designated area to provide knowledge for employees at power development fund in designated area which will be useful for them to apply to their duties.

5.9 Recommendations of Environmental Perspective of Power Development Fund in Category A and B

From the interviews, it was found that for some power development fund, the residents do not propose community projects which help solve environmental problems in the area because the operation of power plant in some areas does not cause

environmental impact around the residential area. Some power plants are operated by using renewable energy, for example, hydro power plant which does not cause any impact on the environment. Therefore, the residents in the area are not willing to propose community projects which involve environment. However, the power development fund should encourage residents in the area to formulate community projects which are related to improvement and development of environment even though the area does not face environment problems, for example, canal digging project, canal cleaning projects. The power development fund should encourage residents to propose and formulate the diversity of community projects and the community projects must contribute to development and solve any environment problems occurred from the operation of power plant.

From the researcher's recommendations, power development fund should motivate residents to propose community projects which provide diversity of environment perspective, for example, the community projects which raise concern of residents in communities about the significance of environment, provide the treatment and remedy of environment, solve pollution in communities, support organizing activities related to environment, and encourage the participation of residents in environment protection.

5.10 Recommendations of Social Perspective of Power Development Fund in Category A and B

From the interviews, it was found that the operation and management of power development fund have provided benefit to the society around designated areas by allocating and disbursing budget for residents to formulate community projects. The residents can attend or participate in public forums in their areas to propose community projects. The community project that residents have proposed will help contribute to the development in the society, for example

- Procurement of close circuit camera (CCTV),
- Procurement of sprayer for killing mosquito

- Scholarship project for students with excellent academic score
- Provision of education and sport equipment
- Procurement of medical equipment, for example, sphygmomanometer, blood glucose test meter , cardio tachometers for health promoting hospital

However, the diversity of community projects that residents have proposed may not cover social development which consists of the following: develop quality of life for residents in communities, develop medical and health care services for residents in communities, develop public utility for residents in communities. In some areas of power development fund category A and B, residents have proposed other aspects, for example, health, environment, etc. Therefore, the power development fund in designated area should encourage residents in the area to propose community projects by setting up the number of community projects proposed by the residents a year which are related to social aspects. They are the community projects that develop quality of life for residents in communities, develop medical and health care services for residents in communities, develop public utility for residents in communities. This helps diversify community projects in the area. Moreover, the ERC and power development fund in designated area must support and approve the community projects related to the context of each community.

From the researcher's recommendations of the operation and management of power development fund in each category A and B after collecting data, it results in a model under SBSC theory which power development funds may be concerned with and create sustainability of operation and management of power development fund.

From the researcher's recommendations, power development fund should motivate residents to propose community projects which provide diversity of social perspective, for example, development of quality of life for resident in communities, medical and health care services for residents in communities, public utility for residents in communities.

According to the score and the weight of the indicator of each perspective in power development fund in category A and B from chapter 4 (4.6), it results in a model from the Sustainability Balanced Scorecard.

5.11 The model of the operation and management of power development fund from sustainability balanced scorecard theory

This figure shows the appropriate model that can be applied to the operation and management of power development fund under the sustainability balanced scorecard theory.

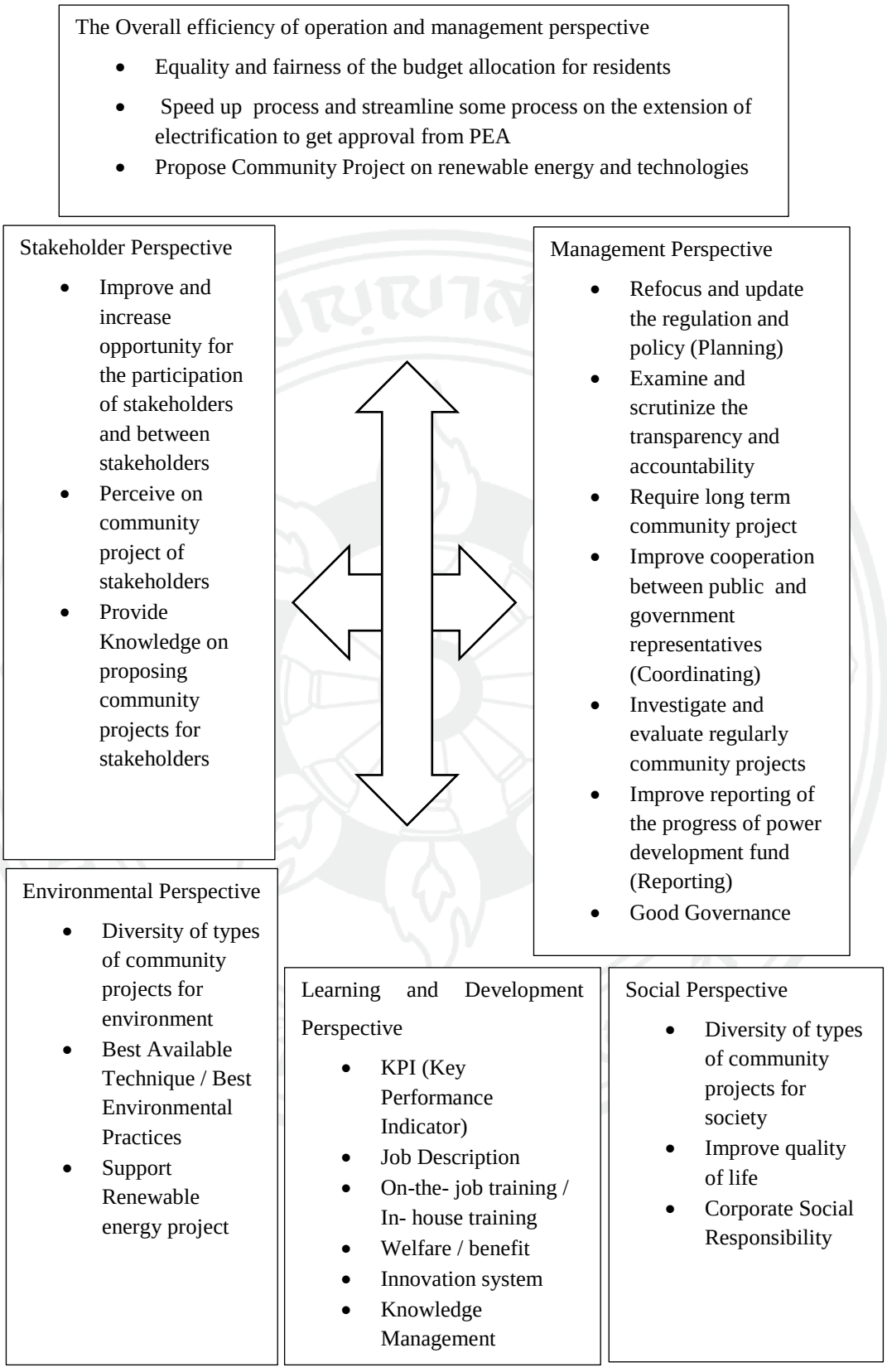

Figure 5.1 Model from Sustainability Balanced Scorecard Theory

5.11.1 The Overall Efficiency of Operation and Management Perspective

5.11.1.1 Equality and Fairness on the Budget Allocation for Residents

Equality and fairness of the budget allocation for residents to formulate community projects help decentralize development and rehabilitate localities. From the interviews, it was found that some power development fund have faced the problems of the budget allocation by the Community Development Committee (CDC) to formulate community projects because CDC seem to allocate budget to one location more than other locations. The CDC should allocate budget to residential areas where there is concern of the impact that the community receives from the operation of power plant. In the area with high impact from the operation of power plant, the ERC should work with the CDC in designated area to allocate more budget to formulate community projects which can help mitigate the impact. On the other hand, for the community which receives less impact from the operation of power plant, the ERC should work with the CDC in designated area on reasonable budget allocation. After setting up a budget plan and analyzing the budget allocation, the power development fund in designated area should inform residents about the exact budget that they will receive in a fiscal year and give the opportunity to residents to scrutinize the budget plan of power development fund. To enhance equality and fairness of allocating budget, the ERC should monitor, examine, and scrutinize the budget allocation of power development fund in designated area.

5.11.1.2 Reduce and Speed Up the Approval Process on the Extension of Electrification from PEA

On the reduction and speeding up of the approval process of the extension of electrification from PEA, from the interviews with sub-district headmen who live around the operation and management of power development fund, it was found that the process for formulating community projects starting from organizing a public

forum, proposing community projects, and sending them to CDC for approval, the process must be finished in 30 days. But during each process, some communities need to contact other related organizations, especially for the extension of electrification. Therefore, the process of proposing community projects cannot finish within 30 days. The process of extension of electrification to various localities has faced some problems because it requires residents to contact the Provincial Electricity Authority (PEA) to get approval on the extended electricity around the areas and after the approval, residents need to bring the document to contact power development fund in the area for document approval once again. The ERC and Power Development Fund in designated area should find ways to reduce or speed up the process when residents propose community projects by communicating and negotiating with responsible organization, for example PEA, about the requirement process and document for the extended electricity by reducing the process and the required document in case the residents request for the extended electricity.

5.11.1.3 Propose Community Projects on Renewable Energy and Technologies

On the proposal of community projects on renewable energy and technologies; from the interviews with power development fund, sub-district, and village headmen, it was found that most proposed community projects are not about renewable energy and technologies because residents think that it is not necessary and it should be the duties and the role of power plant. Instead, the residents have proposed community projects about public utility, for example. road, water, etc. According to the objectives of the power development fund set up to promote the use of renewable energy and technologies for electricity industry operation that have minimal impact on the environment, with due consideration of balance of natural resources and fairness to power consumers, the ERC should motivate residents to propose and formulate community projects related to the objectives of power development fund. The ERC should set up requirement for residents in designated area to propose at least one or two community projects related to the renewable energy and technologies.

5.11.2 Stakeholder Perspective

From the interviews with sub-district headmen and residents who live around the power plant, it was found that they have faced problems of knowledge on writing the document to propose community projects. Most proposed community projects are rejected because residents have less ability and knowledge on proposing community projects. Therefore, 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 in public forums has also become one of the most important problems that CDC, the fund, and its employees should cooperate with one another to find the way to encourage residents or stakeholders to participate in public forums which can provide opportunity for them to propose community projects resulting in development in community areas.

From the interviews with residents or stakeholders who live around the power plant, it was found that they have faced perception problems toward the community projects. Some residents or stakeholders do not know that community projects are established and formulated in their community area. They said that the power development fund in designated area do not communicate with them and inform them about the formulation of community projects in their area. To solve the problem, power development fund should communicate with sub-district and village headmen who are representatives of residents and inform them about community projects. The perception problem occurred in the area may be solved. For some power development fund, they do not install a signboard to inform residents or stakeholders about community projects in the area. Therefore, power development fund should set up a signboard.

On the increased participation of stakeholders who receive impact from the power plant, from the interviews with sub-district headmen and residents, it was found that when power development fund organize public forums for residents or stakeholders

to vote and propose community projects, the director of Energy Regulatory Commission Regional Office, the manager of power development fund, and even local government organization do not participate in the public forum. The ERC should motivate them to participate in the public forum which help them understand what residents or stakeholders want to develop and improve the area through the proposed community projects. The director of Energy Regulatory Commission Regional Office, the manager of power development fund, and local administrative organization should participate with residents or stakeholders before, during, and after operating community project.

5.11.3 Management Perspective

5.11.3.1 Refocus and Update of the Regulation and Policy (Planning)

On the refocus and update of the regulation and policy (Planning); from the interviews with managers and employees of power development fund, it was found that they would like the ERC to refocus on regulations and policy that have assigned to all power development fund in each category because some regulation and policy are not applicable and not suitable for some types of power development fund. The ERC should come to monitor the operation and management of power development fund and should assign the regulation and policy suitable to the power development fund in each area. It is better than assigning one regulation and policy which apply to all power development fund to follow. According to (Weingrat, L.R & Weldon, 1988) , planning plays an important role in the goal effort and a group goal is expected to motivate planning. Therefore, the refocus on regulation and policy will make it suitable to power development fund in each area. It will enable power development fund to reach the goal effort on the operation and management without facing any conflict among residents and stakeholders in the area.

5.11.3.2 Improve the Cooporation between Public and Government Representatives (Coordinating)

On the improvement of the cooperation between public and government representatives (Coordinating), from the interviews, it was found that there are cooperation problems between public sector and government sector representatives. The ERC and Power Development Fund should be the third party to foster cooperation between the public sector and the government sector representatives. With such cooperation, it will help power development fund in designated area to be more effective and efficient in the operation and management, leading to successful operation and management.

5.11.3.3 Require Long - Term Community Projects to Create Sustainable Development in Community

Long-term community projects are required to create sustainable development in community. Except for the proportion of the community projects with 70:30: (large and small), the ERC and power development fund should set up requirement and encourage long-term (more than a year) community projects. The benefit from the formulation of long term community projects or extended projects will create continuous development and improvement. By supporting community to formulate long term or continuous community projects, it will help create the sustainable development in community such as social, economic, and environment aspects. The society will continuously improve the proposal of long-term or extended community projects by residents or stakeholders. The benefit that the society will receive from long-term or extended projects is that the society will continuously improve. Compared to short-term projects, the society may not be improved as much as possible. The economy in the communities will continuously improve as well from long-term projects or extended community projects. Compared to short-term projects proposed by residents or stakeholders which end in a fiscal year, the revenue or income may be less than those

of long-term or extended projects. The environment around the area will be continually improved by the useful community projects. Some environment problems occurred in the area cannot be solved from the formulation of short-term community projects. The environment problems must be solved by using the long-term project and it should not end in each fiscal year. Therefore, with long-term or extended projects, they will benefit the environment in the area. By proposing long term or extended projects, it will create sustainability development to society, economy, and environment.

5.11.3.4 Examine and Scrutinize the Transparency and Accountability of the Operation and Management

On the examination and scrutiny of the transparency and accountability of the operation and management, from the interviews, it was found that some power development funds have received comments from residents on their transparency of the operation and management. The ERC should assign authorized person or third party to investigate and scrutinize the operation and management of power development fund, which will help reduce the corruption and transparency problems.

5.11.3.5 Investigation and Evaluation for Community Projects according to the interview with the ERC

On the investigation and evaluation of community projects; from the interview with the ERC, it was found that the ERC has assessed and evaluated the performance of power development fund by examining power development fund in category A and B by random sampling by types of fuel used to generate electricity in Thailand. As there are many power development funds in each category, it is difficult to evaluate and assess all of them. However, by random sampling, there have been disadvantages. Because the ERC will not know all performance of the operation and management of power development fund, it should assign authorized person to investigate and evaluate all power development fund in each category. If the ERC visits all power development

fund, it will know all problems that the power development fund and its stakeholders have been facing and their needs to develop community projects. The ERC, the Community Development Committee (CDC), and Power Development Fund must find solutions and consensus to the problem and not let residents or stakeholders solve problems by themselves.

5.11.3.6 Improvement on Reporting the Progress of Power Development Fund (Reporting)

On the improvement of reporting the progress of power development fund (Reporting), from the interviews, it was found that the power development fund have organized the meeting with all sub-district headmen in designated areas about the progress of the operation and management of power development fund. Then, the sub-district headmen will communicate with village headmen about the progress and sometimes the representatives who are members of the CDC will communicate with sub-district headmen about the progress of operation and management and the use of budget. However, from the interviews with sub-district-headmen, it was found that in some power development fund, the CDC does not report the progress of power development fund and the community projects. Therefore, the ERC and Power Development Fund should solve these problems by requesting representatives and the CDC to report the progress. A signboard should also been set up to inform residents about the progress of the operation and management of power development fund and the community projects.

5.11.3.7 Good Governance

On the management process of power development fund, it should focus on good governance theory on the effectiveness and efficiency of power development fund. The effectiveness and efficiency will deliver benefits and make residents or stakeholders satisfied with the operation and management of power development fund

in designated area. The ERC and power development fund must cooperate with each other to use their own resources which help provide benefit to residents or stakeholders in social, economic, and environment perspectives. For example, power development fund should manage and support residents to propose social community projects which provide benefit, for example, improve quality of life, improve standard of living to every community in the area, manage and allocate budget to all communities in the area which can help improve economy and income of residents, and support and encourage residents to propose environment community projects even if some areas do not face any environmental problem.

5.11.4 Learning and Development Perspective

5.11.4.1 Key Performance Indicator (KPI)

Key Performance Indicator (KPI) will be used as a tool for power development fund to evaluate the performance of their employees. From the interviews with the ERC and the CDC, there have been a few KPI. Without KPI, it will have impact on the efficiency and the motivation of employees. Therefore, KPI will be crucial criteria and indicators. Moreover, the results from KPI will measure how well the employees perform in their current position. The better rank or point that the employees receive from the evaluation, the more benefit or advantage the employees will receive.

5.11.4.2 Job Description

For job description, in some power development fund, employees have worked without their job description and they do not have certain responsibility for their position. The power development fund do not have job description in a written form. The employees have worked from their own work experience without job description. By setting up job description for each position of power development fund, the employees will know their roles and responsibility of their positions and will follow

those job descriptions to apply to their work. With job description, it will help employees to improve on working efficiency and ability. They will not misunderstand their duties. The job description will be used as a model for employees of power development fund.

5.11.4.3 On-the job-training / In-house training

On-the-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 trainings which are necessary for employees to apply to their job even if it is not directly related to their responsibility. But job trainings can provide benefits and advantages for the employees in power development fund because the employees need to know about, for example, the regulation on procurement, law and regulation about power development fund, knowledge on accounting and financing. On-the-job training / in-house training will improve working ability and efficiency for employees in the power development fund.

5.11.4.4 Welfare and Social Security

Welfare and social security have also become an important issue that the ERC and Power Development Fund need to consider for their employees. As the employees are not government officers, they are hired by power development fund in designated area. From the interviews with the employees of power development fund, they are not government officers therefore the benefits and welfare that they receive are less than those of government officers who work at the ERC Regional Office. Without welfare and benefit, it has impact on their work motivation. The ERC and the ERC Regional Office and Power Development Fund in designated area should find measures to provide and improve welfare, social benefit and security for their employees on an equal basis. Making employees satisfied with their duties is very important. In articles by (Falle, Rauter, Engert, & Baumgartner, 2016), on sustainability management with

the Sustainability Balanced Scorecard in SMEs, the findings from an Austrian Case Study, there is concern about the importance of the benefit that the employees receive from working at SMEs. Power development fund also need to be concerned with the benefit that employees receive from working for power development fund and must make them satisfied with their duties.

5.11.4.5 Innovation System

For innovation system, all power development fund in category A and some of power development fund in category B have already applied the innovation, for example, e-funding used to report the progress of power development fund, Dynamic Ax used to set up budget and monitor the use of budget in power development fund. However, many power development fund do not apply innovation. Therefore, the ERC should allow and give authorization to other power development funds to use the innovation system. By using the innovation system such as e-fund and Dynamic Ax, all power development fund in each category will hence improve their performance on the operation and management

. **5.11.4.5 Knowledge Management**

For knowledge management, from the interviews with managers and employees of power development fund, it was found that knowledge management system was not applied in power development fund. By applying knowledge management inside power development fund, it will help power development fund to have system on the managing knowledge and information that necessary for apply in power development fund. The knowledge and information will be group in suitable location and it will be easy for all of users to find or collect knowledge and information for using in power development fund.

5.11.5 Environment Perspective

From the interviews with the employees of power development fund, sub-district headmen, and residents around the operation of power plant, it was found that in some power development fund, their residents have proposed community projects which are not related to solve environmental problems. When residents want to propose the community projects, most of the projects are related to the specific problem which occurs in the area and it has direct impact to the community but there are no various kinds of environment projects which residents or stakeholders have proposed. From the diversity problem on environmental community projects, the ERC should deploy policy and regulation 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 campaigns the same as power development fund award but the campaign should focus on the environmental community projects with the best available technique (BAT) that help solve environment problems and best environmental practice (BAP) award which supports community projects that create practical method or tool to apply to environmental development in the area. Through the use of the campaign, it will motivate stakeholders to propose more environmental community projects. Through 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 doing community projects. Moreover, the community projects must provide benefit to residents who live around the area, not specifically for some group of stakeholders in specific areas. Environmental Practices will help contribute to cost reductions, and resource saving for environment around the area operated by power plant.

With the objectives of power development fund set up to promote the use of renewable energy and technologies for electricity industry operation that have minimal impact on the environment, with due consideration of balance of natural resources and fairness to power consumers, the ERC should motivate residents to propose and

formulate community projects related to the objectives of power development fund. The ERC should set up requirement for residents in the designated area to propose at least one or two community projects which use the renewable energy and technologies.

5.11.6 Social Perspective

5.11.6.1 Diversity of Types of Community Project for Society

From the interviews with the employees of power development fund, sub-district headmen, and residents who live around the operation of power plant found, there have been a lot of community projects which help develop society. However, the diversity of community projects that residents have proposed may not cover social development in communities because in some areas, residents have proposed community project focusing on, for example, health, society, cooperation, education. Therefore, power development fund in designated area should encourage and motivate residents or stakeholders to propose social community projects which cover all social development aspects, not only specifically the community projects that provide benefit 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 with transparency on doing community projects and let residents or stakeholders examine the operation of social community projects. They also need to have equality and inclusiveness and provide opportunity to stakeholders to participate in social community projects.

5.11.6.2 Improve quality of life

Social community projects must help improve quality of life to all residents or stakeholders, not specifically to some group of people. The ERC must make sure that all approval community projects have provide benefit to improve quality of life for all stakeholders. After the ERC approves community projects, the ERC should examine

and scrutinize the community projects that provide benefit to residents or stakeholders who receive the impacts or the problems.

5.11.6.3 Corporate Social Responsibility (CSR)

Recently, Corporate Social Responsibility (CSR) becomes one of the most important ideas that many organizations are concerned with. By focusing on CSR, it shows to the society that an organization pays attention to social responsibility while doing business or activities. For the power development fund, except for supporting and allocating budget for residents to propose community projects, it should be an organization that is concerned with CSR. From the interviews with the employees of power development fund, it was found that some power development funds use their own budget to conduct CSR around the community near power development fund. The power development fund in designated area should conduct CSR for the society, for example, public activities on traditional Thai New Year's Day, Father's Day, and Mother's day or the CSR project on big cleaning day project around community supported by power development fund. Moreover, the CSR projects should improve quality of life of residents or stakeholders in society, for example, the use of the power development fund budget to support health-promoting hospital in designated area which can help improve the quality of life of residents and stakeholders.

The conceptual model under Sustainability Balanced Scorecard has come up with information collected from the interviews with key informants. The model can apply to power development fund in category A and B because the problems receiving from collecting information in category A and B are similar.

5.12 The Confirmation of Model

The researcher uses in-depth interviews with key informants to confirm the model from sustainability balanced scorecard. The researcher wants to confirm that the model is suitable and effective enough to be a tool to enable power development fund to be more efficient in the operation and management. The researcher collects information

by in-depth interviews with key informants, for example, the directors of the Energy Regulatory Commission Regional Office, the managers of power development fund in designated area, the employees of power development fund in designated area, the sub-district headmen, the village headmen, and the residents living in community areas and proposing community projects.

5.12.1 Overall Efficiency of Operation and Management Perspectives

The overall efficiency of operation and management perspectives (confirmed model with the managers of power development fund in six areas of the fund A and B, the employees of power development fund in six areas of the fund A and B, the sub-district headmen, the assistant sub-district headmen, and the village headmen who are representatives of residents in community area, as well as the residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund). The key informants are divided into 1) 6 managers of power development fund 2) 18 sub-district headmen, assistant sub-district headmen, and village headmen who are representatives of residents in community area and 3) 48 residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund. The residents are divided into 24 people who propose community projects and get approval of community projects and 24 people who propose community projects but do not get approved of community projects.

Table 5.1 Confirmation of the Model for Overall Efficiency of Operation and Management Perspectives

Perspective	Agree	Disagree	Suggestion
Equality and fairly on the budget allocation for residents	72		The key informants agree with the model and suggest that the budget should be fairly and equally allocated to all communities.
Speed up process on the extend of electrification to get approval from PEA	72		The key informants agree with the model and suggest that the process on the extension of electrification may be reduced and condition to get approval of the project might be reduced which would help get approval of community projects. The ERC may extend the process and the time to propose community projects especially for the community project related to the extension of electrification.
Propose Community Project on renewable energy and technologies	62	10	Some key informants agree with the model that support the proposal of community project on renewable energy and technologies. However, some key informants suggest that the power development fund should guide residents about the significance of renewable energy and technologies projects.

5.12.2 The Stakeholder Perspectives

The Stakeholder Perspectives (confirmed model with the sub-district headmen, the assistant sub-district headmen, and village headmen who are representatives of residents in community area, as well as the residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund). The key informants are divided into 1) 18 sub-district headmen, assistant sub-district headmen, and village headmen who are representatives of residents in community area and 2) 48 residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund. The residents are divided into 24 people who propose community projects and get approval of community projects and 24 people who propose community projects but do not get approval of community projects.

Table 5.2 Confirmation of the Model for the Stakeholders Perspectives

Perspective	Agree	Disagree	Suggestion
Improve and increase opportunity for the participation of stakeholders and between stakeholders	66		The key informants agree with the model and suggest that power development fund should encourage the participation between stakeholders when public forum is organized. Moreover, when public forum is organized, the power development fund should support budget, including snack and drinks, for residents who attend public forum.

Perspective	Agree	Disagree	Suggestion
Perceive on community projects of stakeholders	66		The key informants agree with the model and suggest that the power development fund should inform stakeholders on the existing community projects and provide opportunity to perceive the community projects in area.
Provide Knowledge on proposing community projects for stakeholders	66		The key informants agree with the model and suggest that power development fund should inform and teach stakeholders on how to write and propose community projects.

5.12.3 The Management Perspectives

The Management Perspectives (confirmed model with the directors of the Energy Regulatory Commission Regional Office, the managers of power development fund in six areas of the fund A and B, and the employees of power development fund in category A and B). The key informants are divided into 1) 6 directors of the Energy Regulatory Commission Regional Office 2) 12 managers of power development fund in category A and B and 3) 18 employees of power development fund in category A and B.

Table 5.3 Confirmation of the Model for Management Perspectives

Perspective	Agree	Disagree	Suggestion
Refocus and update the regulation and policy (Planning)	34	2	Some key informants agree with the model and suggest that the regulation and policy of power development fund may be reduced.

Perspective	Agree	Disagree	Suggestion
			However, some key informants suggest that even with reduced regulation and policy, regulation and policy must be applied to all power development fund in designated areas.
Examine and scrutinize the transparency and accountability	36		The key informants agree with the model that requires residents to formulate long-term community projects because with long-term community projects, it will make communities develop in the long term leading to sustainable development in community areas.
Require long term community projects	36		The key informants agree with the model that requires residents to formulate long term community projects because with long term community projects, it will make communities develop in long term which lead to make sustainable development in community areas.
Improve cooperation between public and government representative (Coordination)	36		The key informants agree with the model because recently in some power development fund there arise conflict between public and government representatives. With the coordination between each other, it will improve the efficiency

Perspective	Agree	Disagree	Suggestion
			of the operation and management of power development fund.
Investigate and evaluate regularly community projects	36		The key informants agree with the model and suggest that all community projects must be investigated and evaluated regularly which would help solve the transparency problems of operation and management.
Improve to report the progress of power development fund (Reporting)	36		The key informants agree with the model and suggest that in some power development funds faced with the problem of reporting of the progress of the operation and management of power development fund, improvement on the reporting of the progress of power development fund will help all related sectors to receive information on the progress of the operation and management.
Good Governance	36		The key informants agree with the model and suggest that, by applying good governance theory, it will enable power development fund to be more efficient in the operation and management.

5.12.4 Learning and Development Perspectives

Learning and Development Perspectives (confirmed with the managers and employees of power development fund in six areas of the fund A and B). The key informants are divided into 1) 6 managers of power development fund in category A and B and 2) 18 employees of power development fund in category A and B.

Table 5.4 Confirmation of the Model for the Learning and Development Perspectives

Perspective	Agree	Disagree	Suggestion
KPI (Key Performance Indicator)	24		The key informants agree with the model and suggest that nowadays some power development fund do not have KPI (Key Performance Indicator) of employees. Therefore, if it is possible to have KPI to evaluate the performance of employees, it should benefit the overall management of power development fund.
Job Description	24		The key informants agree with the model and suggest that power development fund should set and deploy the job description for all employees because, recently in many power development funds, the employees still do not have job description for their duties.
On-the-job training / In- house training	24		The key informants agree with the model and suggest that power development should support job training or in-house training related to the duties of power development fund.

Perspective	Agree	Disagree	Suggestion
Welfare / benefit	24		The key informants agree with the model and suggest that power development fund should support welfare for employees who work for power development fund more than the welfare that power development fund recently provide.
Innovation system	24		The key informants agree with the model and suggest that power development fund should create innovation system to apply for the operation and management of power development fund.
Knowledge Management	24		The key informants agree with the model and suggest that power development fund should apply knowledge management for the operation and management of power development fund.

5.12.5 Environment Perspectives

Environment Perspectives (confirmed model with the manager of power development fund in six areas of the fund A and B, the employees of power development fund in six areas of the fund A and B, the sub-district headmen, the assistant sub-district headmen, and village headmen who are representatives of residents in community area, as well as the residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund). The key informants are divided into 1) 6 managers of power development fund 2) 18 sub-district headmen, assistant sub-district

headmen, and village headmen who are representatives of residents in community area 3) 48 residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund. The residents are divided into 24 people who propose community projects and get approval of community projects and 24 people who propose community projects but do not get approval of community projects.

Table 5.5 Confirmation of the Model for the Environment Perspectives

Perspective	**Agree**	**Disagree**	**Suggestion**
Diversity type of community projects for environment	66	6	Some key informants agree with the model that motivate residents to propose community projects which have diversity in types of community projects. Moreover, key informants suggest that power development fund should invite speakers who have knowledge on environment project to provide knowledge for residents in communities to get ideas on how to propose community projects.
Best Available Technique / Best Environmental Practices	72		The key informants agree with the model and suggest that power development fund should provide knowledge or best practice about environment for residents which will be tool and idea for residents to propose community projects.

Perspective	Agree	Disagree	Suggestion
Support Renewable Energy Projects	72		The key informants agree with the model and suggest that power development fund need to support residents to propose renewable energy projects.

5.12.6 Social Perspectives

Social Perspectives (confirmed model with the manager of power development fund in six areas of the fund A and B, the employees of power development fund in six areas of the fund A and B, the sub-district headmen, the assistant sub-district headmen, and village headmen who are representatives of residents in community area, as well as the residents living in communities who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund). The key informants are divided into 1) 6 managers of power development fund 2) 18 sub-district headmen, assistant sub-district headmen, and village headmen who are representatives of residents in community area 3) 48 residents who live in communities and who receive any impact and problems from power plant and receive benefit from the operation and management of power development fund. The residents are divided into 24 people who propose community projects and get approval of community projects and 24 people who propose community projects but do not get approval of community projects.

Table 5.6 Confirmation of the Model for Social Perspectives

Perspective	Agree	Disagree	Suggestion
Diversify type of community projects for society	70	2	Some key informants agree with the model. However, the formulation of the diversity of social community project need to

Perspective	Agree	Disagree	Suggestion
			be concerned with the internal and external factors of communities because some areas may not be able to formulate various kinds of social community projects.
Improve quality of life	72		The key informants agree with the model and suggest that the community projects proposed by the residents must be the projects that improve quality of life of the residents in community area.
Corporate Social Responsibility (CSR)	72		The key informants agree with the model and suggest that social community project should create corporate social responsibility (CSR) for community area.

CHAPTER 6

CONCLUSION, DISCUSSIONS AND RECOMMENDATIONS

6.1 Conclusion

This study had two objectives namely: 1) to evaluate the operation and management of power development fund in Thailand and 2) to suggest the appropriate model for managing power development fund in Thailand. Moreover, this study focused on the evaluation of the performance of the operation and management of power development fund and proposed an appropriate model for managing power development fund in Thailand. The appropriate model could be applied to Energy Regulatory Commission (ERC), Power Development Fund Department, and Power Development Fund. The results of the study were concluded according to the objectives of this study and Sustainability Balanced Scorecard (S-BSC) concept as follows.

6.1.1 Evaluation of the Operation and Management of Power Development Fund in Thailand Category A and B

The average score obtained from the evaluation of the operation and management of power development fund based on Sustainability Balanced Scorecard, it was found the followings are results of this study.

6.1.1.1 Power development fund in category A in this study consisted of power development fund Mae Mao power Plant, Bang Pa Kong power plant and Wang Noi power plant. The average score on the overall efficiency of the operation and management perspective was 2.86. The average score on the management perspective was 2.73. The average score on the stakeholders perspective was 3. The average score on the learning and development perspective was 1.33. The average score on the

environment perspective was 3. The average score on social perspective was 3. The overall performance of the power development fund category A was 2.75.

6.1.1.2 Power development fund in category B in this study consisted of power development fund North Bangkok power plant, Nam Phong power plant and Ratchaburi Electricity Generating Company Limited. The average score on the overall efficiency of the operation and management perspective was 2.6. The average score on the management perspective was 3. The average score on the stakeholders perspective was 2.77. The average score on the learning and development perspective was 2.33. The average score on the environment perspective was 3. The average score on social perspective was 3. The overall performance of the power development fund in category B was 2.80.

6.1.1.3 In power development fund of Mae Moh Power Plant, North Bangkok Power Plant, Nam Phong Power Plant, and Ratchaburi Electricity Generating Company Limited, they faced the problem of proposing community projects. Residents living around these power plants and requesting community projects did not propose community projects related to the use of renewable energy. The motivation consisted of inviting guest speakers with knowledge in doing project related to renewable energy to provide information on the importance of renewable energy and the kind of renewable energy project that the residents could propose and formulate the community projects which would provide solution and would be very important for the operation and management of power development fund.

6.1.1.4 In power development fund of Mae Moh Power Plant, Wang Noi Power Plant, Bang Pa Kong Power Plant, and Nam Phong Power Plant, they faced the problem of providing trainings and supporting knowledge for employees of power development fund. The number of trainings and supporting knowledge for employees was not sufficient and they requested power development fund to increase the number of trainings.

6.1.1.5 In power development fund of Wang Noi Power Plant, they faced the problem of the report of the progress on the operation and management of power development fund to related organizations, stakeholders, and residents who lived around the power plant. It was found that the power development fund in designated areas did not regularly report the operation and management of power development

fund to related organizations, stakeholders, and residents who lived around the power plant. To increase the number of reporting on the operation and management of power development fund, it would help related organizations, stakeholders, and residents to perceive the performance of power development fund in designated area and all stakeholders would be able to examine and scrutinize the operation and management of power development fund.

6.1.1.6 In power development fund of Bang Pa Kong Power Plant, there was the motivation problem for residents to participate in public forums organized by power development fund in designated areas. The residents who lived around power plant were not willing to participate in the public forum organized by power development fund. The power development fund should find solution to motivate residents to participate in public forums, for example, the power development fund might provide snack and drinks for residents who attended the public forum which might help increase and motivate residents to participate in public forum.

6.1.1.7 In power development fund of Nam Phong Power Plant, there was the problem of the opportunity for stakeholders and residents to examine and scrutinize community projects established and formulated in community areas. From the interviews, residents and stakeholders did not have the opportunity to examine and scrutinize the existing community projects.

6.1.2 The Performance of Power Development Fund in Category A and B in six Perspectives

6.1.2.1 The Power Development Fund in Category A in six Perspectives

For overall efficiency of the operation and management perspective, power development fund in category A supported residents to propose community projects which could increase the quality of life of residents, for example, occupational groups which create job and income for residents in community. For management perspective, the power development fund in category A coordinated with related organization and all stakeholders to report the progress of the operation and management. Moreover, power development fund also supported the participation of residents in public forum

to propose and vote for community projects. For stakeholders perspective, the power development fund also provided the opportunity for all stakeholders to receive information about the operation and management of power development fund and all stakeholders had the opportunity to participate in the public forum that power development fund organizes. All stakeholders also had the opportunity to examine and scrutinize the performance of power development fund. For learning and development perspective, the power development fund in category A provided the opportunity for employees who worked for power development fund to improve knowledge and skills necessary for their duties, for example, the knowledge on accounting, financing, and procurement. For environment and social perspectives, the power development fund in category A supported and allocated budget for residents in order to propose community projects related to environmental and social projects.

6.1.2.2 The Power Development Fund in Category B in six Perspectives

For overall efficiency of the operation and management perspective, the power development fund in category B supported residents to propose for community projects which could increase the quality of life of residents and community projects that help to solve impacts from the operation of power plant for example restoring temple and schools which received impacts from the operation of power plant. For management perspective, the power development fund in category B coordinated with related organizations and all stakeholders on reporting the progress on the operation and management; moreover power development fund also supported the participation of residents toward the attendance of public forum for proposing and voting for community projects. For stakeholders perspective, all stakeholders had the opportunity to receive information about the operation and management of power development fund and all stakeholders had the opportunity to participate in the public forums that power development fund organized and all stakeholders also had the opportunity to examine and scrutinize on the performance of power development fund. For learning and development perspective, the power development fund in category B provided the opportunity for employees who worked for power development fund to improve

knowledge and skills which were necessary to apply to their duties, for example knowledge on procurement and accounting. For environment and social perspectives, the power development fund in category B supported and allocated budget for residents to propose for community projects related to environmental projects and social projects.

6.1.3 The Appropriate Model for Managing Power Development Fund in Thailand

From the evaluation of the operation and management of power development fund, an appropriate model was derived based on the Sustainability Balanced Scorecard (SBSC) theory as follows:

6.1.3.1 Overall Efficiency of the Operation and Management Perspectives

In this perspective, the power development fund should equally and fairly allocate budget for residents to propose community projects. The power development fund in designated area should motivate residents to propose communities projects.

6.1.3.2 Learning and Development Perspectives

According to the model, the Energy Regulatory Commission (ERC), Power Development Fund Department, the ERC Regional Office (OERC), and Power Development Fund in designated area should provide more job training/ in-house training, set up job description, and KPI (Key Performance Indicator) for all employees.

6.1.3.3 Management Perspective

According to the model, the Energy Regulatory Commission (ERC), Power Development Fund Department should update the regulation and policy to deploy to all

power development funds in each category in designated areas. They should examine, scrutinize, and evaluate all community projects, as well as improve the report of the progress of the performance of power development fund and inform to all stakeholders.

6.1.3.4 Stakeholder Perspective

According to the model, the stakeholders should have the opportunity to participate in public forums to vote and propose community projects. They should also have the ability to perceive the existing community projects and should have knowledge which enables them to propose community projects.

6.1.3.5 Environment Perspective

According to the model, the community projects proposed by residents should have diversity of environmental project and power development fund should support residents to propose community projects related to renewable energy.

6.1.3.6 Social Perspective

According to the model, the community projects proposed by residents should have diversity of social supporting projects which help improve quality of life in community and also enhance social cooperation in society.

6.2 Discussions

According to the Sustainability Balanced Scorecard Model, the study applied SBSC theory in each perspective under the operation and management of power development fund. The issues helped improve the operation and management of power development fund. For example; in the management process perspective, power development fund should coordinate and participate with other sectors in the operation and management of power development fund because it would help power development

fund to have better performance. By coordinating and participating with other sectors, the power development fund would know about the situation in communities including problems that residents in communities faced from the operation of power plant. The power development fund in designated areas would use that information to adapt and apply for the operation and management of power development fund in designated areas and provide maximum benefit to residents in communities through the support of residents on proposing community projects. This was related to L.J. (2005) who mentioned that coordination balanced and maintained the team by ensuring a suitable division of work and seeing that tasks were performed in harmony. The power development fund should report the progress of the operation and management of power development to related sectors and organizations. By reporting the progress, it would help related sectors and organizations to receive information and the progress of the operation and management of power development fund. Reporting the progress of operation and management as a model for applying to power development fund was related to Chima Sebastine Ugwulashi (2012) who described that reporting created effective, realistic, good, and unbiased communication that feedback for organizational growth, in other words, instilling trust and confidence among members. The power development fund should increase participation of residents in the operation and management of power development fund. Kaufmann et al (2007a) described that participation was a degree of involvement of the citizen of a country in the election of their political leader. But the participation in terms of power development fund meant the involvement of residents to participate in the operation and management of power development fund. The power development fund should have accountability and transparency in the operation and management which provided benefit to all stakeholders. With the accountability and transparency of the operation and management of power development fund, all stakeholders would be able to perceive and receive accurate information on the operation and management of power development fund. Moreover, not only power development fund in designated area operated and managed with accountability and transparency but power development fund should also provide the opportunity to all stakeholders to examine and scrutinize the operation and management of power development fund. Keping (2018) described that accountability referred to the duties related to a certain position or institution and

its corresponding obligations. The more accountability the public, especially public officers and administrative bodies had, the higher the level of good governance would be. With accountability and transparency of the operation and management of power development fund, it would help create trust to all stakeholders in the operation and management of power development fund. For learning and development perspective, Bandura (1997b) described that training could be used to enhance self-efficacy levels among employees. For power development fund, trainings provided for the employees of power development fund were also very important because if the employees had more efficient skill in their duties, it would benefit the operation and management of power development fund. For social perspective, the power development fund should support residents to propose community projects which supported Corporate Social Responsibility (CSR). By involving the community projects related to CSR, it not only provided benefit to stakeholders but it could also build relationship between power development fund in designated area and stakeholders affected by the operation of power plant. Applying CSR in power development fund was related to Coombs, T.W. & Holladay, S.J. (2012) who defined CSR as "the voluntary actions that a corporate implements as it pursues its mission and fulfills its perceived obligations to stakeholders, including employees, communities, the environment, and society as a whole". (WECD, 1987) The CSR was a concept that offered to the companies the opportunity to treat the environmental and social problems as a part of their business operations. The CSR was a sustainable development modality which helped the companies to respond in a positive manner to the present needs without compromising the ability of future generations to meet their own need. For environmental perspective, the power development fund should focus on the environmental community projects related to Best Environmental Practices, for example, community projects that could solve environment problems derived from the operation of power plant, the community projects that saved environmental resources around communities impacted from the operation of power plant. Recently, best environmental practices were applied in many fields. In the articles by Enz, SIGUAW, A. Enz, & A. Siguaw (1999), they studied Best Hotel Environmental Practices by which many hotels tried to operate by applying environmental-friendly ideas. (Dri M., Canfora P., Antonopoulos I. S., 2018) In the report by European Commission (JRC Science for policy report) under the title Best

Environmental Management Practice for the Waste Management Sector, Best Environmental Management Practice, identified in closed cooperation with a technical working group comprising experts from the sector, covered the areas of waste management which determined the overall waste management performance the most: setting a waste management strategy, promoting waste prevention, establishing an efficient waste collection that supported reuse and recycling, and stimulating waste preparation for reuse and product reuse. The report presented a wide range of information (environmental benefits, economics, case studies, references, etc.) for each of the best practices and aimed to provide inspiration and guidance to organizations of the sector.

The researcher set up a model for applying to the operation and management of power development fund under the Sustainability Balanced Scorecard theory (SBSC). The issue that the researcher recommended in each perspective came from the problem that the researcher faced while collecting information. The issues recommended in each perspective would help power development fund to be more efficient in the operation and management. Because the issues provided the solution and recommendation to solve the problem that power development fund in designated areas were facing. The model under the Sustainability Balanced Scorecard was suitable to be tool and guideline for power development fund to be more efficient in the operation and management. The Sustainability Balanced Scorecard consisted of six perspectives which were suitable to evaluate the performance of power development fund. The issues in the model in each perspective have already been confirmed by selected key informants who received benefits and impacts from the operation and management of power development fund in designated areas. For the overall efficiency of operation and management perspective, the key informants agreed with the recommendations that budget should be fairly and equally allocated to residents in communities. For the management perspective, the key informants agreed that the operation and management of power development fund should be examined and scrutinized, the cooperation between public and government representative should be strengthened, the community project formulated in communities should be investigated and evaluated regularly, the reporting on the operation and management of power development fund should increase. For the stakeholder perspective, the key informants agreed that stakeholders

should have more opportunity to participate in the operation and management of power development fund, the participation among stakeholders should increase, and stakeholders should have knowledge and skills on how to write and propose community projects. For the learning and development perspective, the key informants agreed that power development fund should set up Key Performance Indicator (KPI), Job Description, on-the-job training for employees who worked at power development fund in each location. For the environment perspective, the key informants agreed that the community projects formulated in communities should be diversified for environment projects. For the social perspective, the key informants agreed that the social community projects formulated in communities should be diversified in type and should improve quality of life and should enhance Corporate Social Responsibility.

However, some issues in the model still had limitations to apply to the operation and management of power development fund, for example, the speeding up process and reduction of some process on the extension of electrification to get approval from PEA. Getting an approval from PEA on the extension of electrification might take time and was uncontrollable because PEA had its own process to approve the document of the extension of electrification. Therefore, by reducing the process of PEA and speeding up the process with PEA, power development fund might negotiate with PEA in communities on approval process of the extension of electrification; the refocus and update of the regulation and policy (Planning). From the collected information with key informants, it was found that the regulations and policy that Energy Regulatory Commission deployed to power development fund were not suitable to apply to some of power development fund and the key informants recommended to refocus and update regulations and policy of power development fund. However, by refocusing and updating the regulations and policy for using and applying to some power development funds might not be possible because the regulation and policy were set up and deployed to all power development fund in each category. Therefore, the model might be difficult to apply. But if the Energy Regulatory Commission (ERC) had alternative solution to solve problem of regulation and policy faced by some power development funds, it would benefit the operation and management of power development fund.

6.3 Recommendations

6.3.1 The Recommendations for the Energy Regulatory Commission, the Power Development Fund Department, and the Energy Regulatory Commission Regional Office

1) The Energy Regulatory Commission and Power Development Fund Department should deploy policy on the evaluation of the performance of power development fund in Thailand which help understand and perceive problems and obstacles that power development fund in each area has faced and found solutions to solve the problems. The Energy Regulatory Commission and the Power Development Fund should assess and evaluate the performance of all power development funds in Thailand. Recently, the Power Development Fund Department hires outsourced person to assess and evaluate the community project in specific area by using random sampling method. The power development fund in designated area will be selected from the random for the evaluation.

2) The Energy Regulatory Commission and the Power Development Fund Department should concern with the context of the process to get approval of community projects. Because to get approval of doing community projects, sometimes it needs to get approval of document from local organization before proposing community projects, for example, the extended electrification project. The residents need to get document from local organization before proposing and formulating community project with power development fund in designated area. However, the length of time to get approval from local organization may take time and it may affect the process to propose and formulate community projects. The residents may not be able to propose community project within the period of time required by power development fund. Community projects may not get approval from power development fund. Therefore, the Energy Regulatory Commission may refocus on the process to get approval of doing community project by extending the period of proposing community projects and make the process more flexible and easy for residents to propose community projects.

3) The Energy Regulatory Commission and the Power Development Fund Department should support and increase the number of trainings for the employees of power development fund. The power development fund may prepare the document of training needs for employees to select on what kind of training they want. It must be related to the knowledge and skill which can apply to use for the operation of power development fund, for example, procurement and purchasing skill, finance, or accounting. From the document of training needs, power development fund in designated area will know what kind of training and knowledge the employees want to learn and improve. The power development fund may set up training programs which consist of necessary knowledge that can be applied to the operation and management of power development fund for the employees of power development fund in designated area to attend.

4) The Energy Regulatory Commission and the Power Development Fund Department should improve the programs, for example, Dynamic AX and E-funding which make it easy to use. Therefore, the Energy Regulatory Commission and the Power Development Fund Department should deploy the policy to use in the programs and widely use for power development fund.

5) The Energy Regulatory Commission and the Power Development Fund Department should be concerned with the qualification of persons who will take part in the Community Development Committee and Village Development Committee on their education background. Because these people need to manage the budget for formulating community projects. Therefore, the higher education or knowledge of the public representatives, the more benefit the residents and stakeholders will receive from the power development fund and the power development fund will efficiently manage budget and power development fund.

6) The Energy Regulatory Commission, the Power Development Fund Department, and the Energy Regulatory Commission Regional Office in designated areas should examine and investigate the use of budget of power development fund in designated areas distributed to residents to formulate community projects.

7) The Energy Regulatory Commission, the Power Development Fund Department, and the Energy Regulatory Commission Regional Office in designated area should deploy authorized person to visit the fund so as to examine and scrutinize

the existing community projects. The Energy Regulatory Commission, the Power Development Fund Department, and the Energy Regulatory Commission Regional Office should listen to what residents and communities need to develop in their areas. When the public forum is organized, the authorized persons from the Energy Regulatory Commission, the Power Development Fund Department, and the Energy Regulatory Commission Regional Office should attend public forums in designated areas.

8) The Energy Regulatory Commission may provide the opportunity for residents to propose community projects with the budget of more than 300,000 baht. Recently, regulations have provided opportunity for residents to propose and formulate community projects with less than 300,000 baht. Therefore, if the Energy Regulatory Commission refocuses on the regulations of the use of budget, it will help residents to formulate various community projects without the limitation of the budget of over 300,000 baht.

6.3.2 The Action – Oriented Recommendations for Power Development Fund in Thailand in Category A and B

1) The power development fund in Thailand should increase the number of trainings and knowledge management for their employees. Because from the interviews, it was found that many power development fund faced the problems of the number of trainings and knowledge management that power development fund provided for their employees. In some of power development fund provided less amount of training and knowledge management for example 1-2 times per year to employees of power development fund, moreover the training and knowledge management that power development fund provided to employees weren't be able to improve efficiency and skill of employees which could apply for their duties. There should be knowledge necessary for the employees of power development fund in designated area, for example, purchasing and procurement skills, finance or accounting.

2) The power development fund in Thailand should recruit employees to work in power development fund that have work experience related to the operation and management of power development fund. From the interviews, it was found that the

power development fund in some designated areas still lacked employees who had work experience and education background in engineering and architecture because some community projects were about construction. Therefore, power development fund should be concerned with the recruitment of persons who have knowledge background in related fields.

3) The power development fund in Thailand should encourage residents in communities to propose community projects related to renewable energy because from the interviews, it was found that many power development fund had community projects related to renewable energy.

4) The power development fund in Thailand should increase the number of the report of the operation and management of power development fund to related organizations and residents who live in communities. The power development fund in designated areas should report the progress during formulation of community projects and also the progress after community projects are formulated to all residents in the area. The report of the progress of community projects will provide benefit to residents who propose community projects. The power development fund in Thailand should inform the residents whether the community projects that they propose earlier get or do not get approval. By informing the result of community projects, it will decrease transparency and corruption problems in formulating community projects.

5) The power development fund should guide the residents on the kind of community projects that they can or cannot write and propose by assigning knowledgeable person to the area when the public forum is organized. By guiding, it will help solve rejection problem of community project by power development fund.

6) The power development fund should make sure that the community projects proposed by the residents must provide benefit to all communities, not specifically in some areas.

7) In case community projects do not get approval from power development fund and authorized person, power development fund should inform the reason and any necessary document needed to include in order to enable community projects to get approval.

8) The power development fund should provide the opportunity for residents to participate in the operation and management of power development fund and the power

development fund should be more sincere to the residents and stakeholders. The power development fund should provide the opportunity to all residents to be a part of public representatives for Community Development Committee and Tambon Development Committee.

9) The power development fund should encourage residents to propose community projects which are continuous or long-term community projects. By encouraging residents to propose long term or continuous projects, it will help contribute to sustainable development in communities.

10) The power development fund should motivate residents to participate in public forum to vote and propose community projects.

11) The power development fund should provide the opportunity for residents and stakeholders to examine and investigate the formulation of community projects and after community projects are established. Moreover, for community projects operated by local government organization, the power development fund should give the opportunity for residents to examine and scrutinize the operation of the community projects.

6.4 The Recommendations for Further Studies

1. As power development fund have category A, B and C, therefore, in further studies, the researcher would like to recommend study and evaluation of the performance of the operation and management of power development fund in category C by applying Sustainability Balanced Scorecard to be a tool to evaluate the performance of power development fund in category C. The reason why the researcher would like to study power development fund category C is because the power plant under the operation and management by power development fund category uses different kind of fuel, mostly renewable energy, which may benefit and affect residents who live around the area. Therefore, by studying and evaluating the performance of the operation and management of power development fund in category C, it will benefit the researcher to know how power development fund in category C manage the power plant and how power development fund manage and allocate budget for residents to propose community projects. In further studies, the quantitative analysis will be used

as the data collection method to evaluate the performance of power development fund in category C.

2. The assessment of outcomes and impact from having Power Development Fund in three categories A, B and C should be taken into account so as to compare whether each category A, B and C has met the objectives of the setting up of the power development fund. The result from the assessment of outcomes and impact of power development fund category A, B and C will enable the researcher to find out which category of power development fund needs to support and which category of power development fund needs to improve on the operation and management fund under the objectives of the setting up of power development fund. In further studies, the quantitative analysis and qualitative approach should be taken into consideration for evaluation of power development fund performance.

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APPENDIX A

Questions for Interviews with the ERC Committee and Director of the Power Development Fund Department

1. Does the power development fund department support and provide knowledge and training for officers of power development fund department? (Learning and Development Perspective)
2. Does the power development fund department apply innovation system for use in the operation and management of power development fund in each category? (Learning and Development Perspective)
3. Does the power development fund department set up the policy and pattern for operation and management of power development fund in each designated area?
4. Does the power development fund department have organization chart and structure of the operation and management of power development fund in written form?
5. Does the power development fund department set up human resource management for every power development fund in each category?
6. Does the power development fund department have criteria for decision-making on selecting and approving the community projects proposed by residents?

7. Does the power development fund department have budget planning and revision of the use of budget before allocation of budget for each power development fund in designated area?
8. Does the power development fund department inform the benefit and necessary information to every stakeholder, for example, the information on the use of budget, the performance of power development fund in designated area?
9. Which factors that contribute to the success of the power development fund in designated area?
10. Does the operation and management of power development fund lead to foster sustainable development?
11. Is the operation and management of power development fund related to the objective of the setting up of power development fund?
12. How is the model of the operation and management of power development fund?

APPENDIX B

Question for Interviews with Officers of the Power Development Fund Department

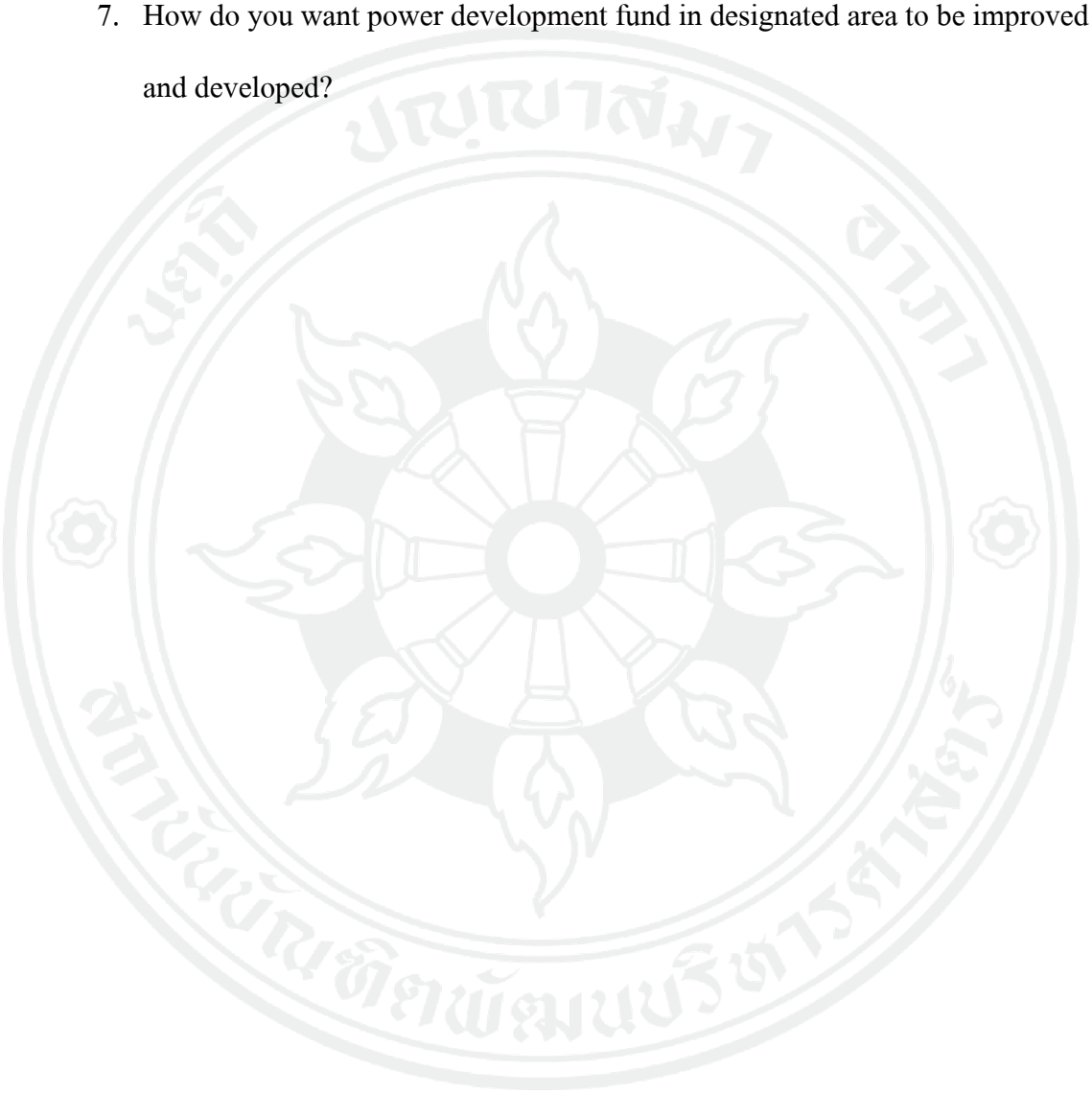
1. Do you receive any training and knowledge supported by ERC which benefit work at power development fund department? (Learning and Development Perspective)
2. Have power development fund department where you are working coordinated and cooperated with related organizations, for example, provinces, the local administration organizations, as well as residents in the communities? (Management Process Perspective)
3. Have power development fund department where you are working reported the progress of the operation and management of power development fund to related organizations as well as informed residents in the communities? (Management Process Perspective)
4. By which channels power development fund department where you are working have reported the progress of the operation and management of power development fund to related organizations and all residents? (Management Process Perspective)
5. How does power development fund department that you working monitor and evaluate tracking the performance of community projects?
6. What are the evaluation criteria between the successful power development fund and the unsuccessful power development fund?

APPENDIX C

Questions for Interviews with Managers of OERC Regional Office of the Power Development Fund in Designated Area

1. Do you receive any training and knowledge supported by ERC which benefit work at OERC Regional Office? (Learning and Development Perspective)
2. Has OERC Regional Office where you are managing coordinated and cooperated with related organizations, for example, ERC, the local administration organization, as well as residents in the communities? (Management Process Perspective)
3. Has OERC Regional Office where you are managing reported the progress of the operation and management of power development fund to related organizations as well as informed residents in the communities? (Management Process Perspective)
4. By which channels the OERC Regional Offices where you are managing has reported the progress on the operation and management of power development fund to related organizations and all residents? (Management Process Perspective)
5. How does OERC Regional Office that you are managing monitor and evaluate tracking the performance of community projects?

6. What are the problems that you face during your management at OERC Regional Offices related to the operation and management of power development fund?
7. How do you want power development fund in designated area to be improved and developed?



APPENDIX D

Questions for Interviews with Managers of the Power Development Fund in Designated Area

1. Do you receive any training and knowledge supported by ERC which benefit your management work at power development fund in designated area? (Learning and Development Perspective)
2. Has power development fund where you are managing coordinated and cooperated with related organizations, for example, ERC, the local administration organization, as well as residents in the communities? (Management Process Perspective)
3. Has power development fund where you are managing reported the progress of the operation and management of power development fund to related organizations and informed residents in the communities? (Management Process Perspective)
4. By which channels power development fund where you are managing has reported the progress of the operation and management of power development fund to related organizations and all residents? (Management Process Perspective)
5. Does the power development fund where you are managing provide opportunity for related organizations or residents to participate in the operation

and management of power development fund? (Management Process Perspective)

6. Does the power development fund where you are managing give the opportunity for every sector to participate in suggestions, examination, and scrutiny of the operation and management of power development fund? (Management Process Perspective)
7. How does power development fund where you are managing support treatment and remedy for residents affected by the operation of power plant? (Overall efficiency of operation and management Perspective)
8. How does power development fund where you are managing support social development affected by the operation of power plant? (Overall efficiency of operation and management Perspective)
9. How does power development fund where you are managing support the use of renewable energy? (Overall efficiency of operation and management Perspective)
10. How does power development fund where you are managing support job creation for communities? (Overall efficiency of operation and management Perspective)
11. How does power development fund that you are managing support generating income for communities? (Overall efficiency of operation and management Perspective)
12. How does power development fund that you are managing place significance on environment management? (Environment Perspective)

13. How does power development fund that you are managing treat and remedy the environment affected by the operation of power plant in designated area? (Environment Perspective)
14. How does power development fund that you are managing solve pollution problems derived from the operation of power plant? (Environment Perspective)
15. How does power development fund that you are managing support activities which help save and protect natural resources around the communities? (Environment Perspective)
16. How does power development fund that you are managing support and create activities which enhance social development and improve the quality of life of residents in the communities (Social Perspective)
17. How does power development fund that you are managing support rehabilitation and remedies of the society affected by the operation of power plant? (Social Perspective)
18. How does power development fund that you are managing support the social cooperation among residents in the communities? (Social Perspective)
19. How does power development fund that you are managing support health care and medical service for the communities? (Social Perspective)
20. How does power development fund that you are managing monitor and evaluate tracking the performance of community projects?
21. What are the problems that you face during you management at power development fund?

22. How do you want power development fund to be improved and developed?

APPENDIX E

Questions for Interviews with Employees of the Power Development Fund in Designated Area

1. Do you receive any training and knowledge supported by ERC and power development fund which benefit work at power development fund in designated area? (Learning and Development Perspective)
2. Has power development fund where you are working coordinated and cooperated with related organizations, for example, ERC, the local administration organization, as well as residents in the communities? (Management Process Perspective)
3. Has power development fund where you are working reported the progress of the operation and management of power development fund to related organizations as well as informed residents in the communities? (Management Process Perspective)
4. By which channels power development fund where you are working has reported the progress of the operation and management of power development fund to related organizations and all residents? (Management Process Perspective)
5. Does the power development fund where you are working provide opportunity for related organizations or residents to participate in the operation and management of power development fund? (Management Process Perspective)

6. Does the power development fund where you are working give the opportunity for every sector to participate in suggestions, examination, and scrutiny of the operation and management of power development fund? (Management Process Perspective)
7. How does power development fund where you are working support treatment and remedy of residents affected by the operation of power plant? (Overall efficiency of operation and management Perspective)
8. How does power development fund where you are working support social development affected by the operation of power plant? (Overall efficiency of operation and management Perspective)
9. How does power development fund where you are working support the use of renewable energy? (Overall efficiency of operation and management Perspective)
10. How does power development fund where you are working support job creation for communities? (Overall efficiency of operation and management Perspective)
11. How does power development fund that you are working support generating income for communities? (Overall efficiency of operation and management Perspective)
12. How does power development fund that you are working place significances on environment management? (Environment Perspective)

13. How does power development fund that you are working treat and remedy the environment affected by the operation of power plant in designated area? (Environment Perspective)
14. How does power development fund that you are working solve pollution problems derived from the operation of power plant? (Environment Perspective)
15. How does power development fund that you are working support activities which help save and protect natural resources around the communities? (Environment Perspective)
16. How does power development fund that you working support and create activities which contribute to social development and improve the quality of life of residents in the communities? (Social Perspective)
17. How does power development fund that you working support rehabilitation and remedies of society affected by the operation of power plant? (Social Perspective)
18. How does power development fund that you working support social cooperation among residents in the communities? (Social Perspective)
19. How does power development fund that you working support health care and medical service for the communities? (Social Perspective)
20. How does power development fund that you working monitor and evaluate tracking the performance of community projects?
21. What are problems that you face during you work at power development fund?
22. How do you want power development fund to be improved and developed?

APPENDIX F

Questions for interviews with sub-district headmen, village headmen, and residents who propose community projects and get approval from power development fund and the group of residents who propose community project but do not get approval from power development fund and live around the operation and management of power development fund

1. Has power development fund in your area reported any progress of the operation and management of power development fund to you and the communities? (Management Process Perspective)
2. By which channels power development fund reports the progress to you and the communities? (Management Process Perspective)
3. Have you ever participated in the operation and management of power development fund in designated area, for example, attending public forums? (Management Process Perspective)
4. Have you ever perceived about the information of power development fund, for example, the budget for formulating community projects, the performance of power development fund which you can examine and scrutinize? (Management Process Perspective)
5. Have your ever written and proposed any community project formulated in your area? (Stakeholder Perspective)

6. Have you ever had the opportunity to write and propose any community project? If so, how and what idea did you get from to write and propose community project (Stakeholder Perspective)
7. During and after you proposal of community project, do you face any problem? (Stakeholder Perspective)
8. After the formulation of community project, do you and your communities face any problem? (Stakeholder Perspective)
9. Have you ever proposed community project related to treatment and remedy affected by the operation and management of power plant under the support of budget from power development fund? (Overall efficiency of operation and management Perspective)
10. Have you ever proposed community projects which contribute to social development in the communities under the support of budget from power development fund? (Overall efficiency of operation and management Perspective)
11. Have you ever proposed community projects which support the use of renewable energy in the communities under the support of budget from power development fund? (Overall efficiency of operation and management Perspective)
12. Have you ever proposed community projects which support the job creation in the communities under the support of budget from power development fund? (Overall efficiency of operation and management Perspective)
13. Have you ever proposed community projects which support the generation of income for the communities under the support of budget from power

development fund? (Overall efficiency of operation and management Perspective)

14. Have you ever proposed community projects which raise communities' concern about the significance of environment under the support of budget from power development fund? (Environment Perspective)
15. Have you ever proposed community projects related to treatment and remedy affected by the operation and management of power plant toward environment under the support of budget from power development fund? (Environment Perspective)
16. Have you ever proposed community projects which solve pollution problems from the operation of power plant in the communities under the support of budget from power development fund? (Environment Perspective)
17. Have you ever proposed community projects which create activities to save and protect natural resources under the support of budget from power development fund? (Environment Perspective)
18. Have you ever proposed community projects which provide the opportunity for residents to participate in activities to save and protect natural resources under the support of budget from power development fund? (Environment Perspective)
19. Have you ever proposed community projects which support activities to develop society and quality of life in communities under the support of budget from power development fund? (Social Perspective)
20. Have you ever proposed community projects which support treatment and remedy the society affected by the operation of power plant under the support of budget from power development fund? (Social Perspective)

21. Have you ever proposed community projects which foster social cooperation in the communities under the support of budget from power development fund? (Social Perspective)
22. Have you ever proposed community projects which support health care and medical service and provide benefit to the communities under the support of budget from power development fund? (Social Perspective)
23. How do you want power development fund in your communities to be developed and improved? (Social Perspective)

APPENDIX G

Perspective	Suitable	Unsuitable	Suggestion	Adoption
1. The Overall efficiency of operation and management perspective 1.1 The power development fund should provide equal and fair budget allocation for residents to propose and formulate community projects 1.2 The power development fund should speed up process and streamline some process on the extensive electrification to get approval from PEA, for example, the requirement process and document for extension of electricity in communities 1.3 The power development fund should support residents to propose community projects related to renewable energy and technologies				
2. Stakeholder Perspective 2.1 The power development fund should improve and increase opportunity for stakeholders to participate in activities, for example, the power development fund should motivate stakeholders to participate in public forum 2.2 The power development fund should inform and increase the perception of stakeholders toward the existing community projects in communities 2.3 The power development fund should provide knowledge on how to propose and formulate				

community projects for stakeholders				
3. Management Perspective 3.1 The power development fund should refocus and update the regulation and policy which can apply in every power development fund 3.2 The power development fund should examine and scrutinize the transparency and accountability of the operation of community projects in communities 3.3 The power development fund should require residents to propose long- term community projects which contribute to sustainable development in communities 3.4 The power development fund should improve cooperation and strengthen relationship between public and government representatives 3.5 The power development fund should regularly investigate and evaluate the operation of community projects 3.6 The power development fund should improve the process of reporting the progress of the operation and management of power development fund 3.7 The power development fund should manage and operate fund by raising concern about good governance theory				
4. Learning and Development Perspective 4.1 The power development fund in designated area should set up KPI (Key Performance Indicator) which help evaluate the performance of employees in power development fund 4.2 The power development fund should have certain job description				

for every position in power development fund 4.3 The power development fund should provide the job training / in-house training about the regulation, the procurement issue which are useful to employees of power development fund 4.4 The power development fund should be concerned with welfare /benefit which employees of power development fund are entitled to from working at power development fund 4.5 The power development fund should apply innovation system for the operation and management of power development fund, for example, Dynamic AX and E-Funding				
5. Environmental Perspective 5.1 The power development fund should motivate residents in communities to propose community projects with diversity in types of environment projects 5.2 The power development fund should motivate residents to propose community projects which create best available technique / best environmental practices for environment in communities 5.3 The power development fund should motivate and support residents to propose community projects on renewable energy				
6. Social Perspective 6.1 The power development fund should motivate residents in communities to propose community projects with diversity in types of social projects				

6.2 The community projects proposed by residents should improve their quality of life in communities 6.3 The power development fund should give significance and support of community projects which can create corporate social responsibility (CSR) in communities				

BIOGRAPHY

NAME	PONGPOJ PUTARUNGSI
ACADEMIC BACKGROUND	Ramhhamhaeng University Major Business Administration , Chulalongkorn University Major European Studies , College of Management Mahidol University, Marketing Management
EXPERIENCES	Administration Level 6 Electricity Generating Authority of Thailand