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SMALL-SCALED WATER RESOURCES PROJECT IN THAILAND: FAILURE ANALYSIS AND IMPROVEMENT OF STAKEHOLDER INVOLVEMENT

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ABSTRACT: Since its rapid economic development in the past thirty years, Thailand has implemented a number of water resources infrastructures significantly to support rapid rural development, industrialization, tourism development, domestic consumption, agriculture and other demands. However, many small-scale water resource projects gave rise to undesirable long-term fiscal burdens on the national government. This malfunction of existing facilities due to poor maintenance is typical case of collective action problems in small-scale water resource projects. The objective of this paper is to identify causes of failure in malfunction small-scaled water resources project employing failure knowledge database concept. Regardless of flood and drought, it was observed from the analysis results that one of the major causes of project failure is associated with lack of project stakeholder management which may be part a result of weakness in the water resources policy, poor regulatory management and not well-developed arrangements for decentralization. In an attempt to improve stakeholder involvement in water resources project management in Thailand, *encouragement the government official to conduct stakeholder analysis and beneficiary contribution approach* are proposed in this paper. In parallel, capacity building for both government officials and locals is needed to increase awareness and knowledge regarding to water resources project management. There is no guarantee for these proposed issues. However, the proposed issues could offer the involvement of stakeholder right from the start and result in improved project development and management and may decrease number of failure small-scaled water resources project in Thailand.

KEYWORDS: water resources in Thailand, stakeholder analysis

1. INTRODUCTION

Since its rapid economic development in the past thirty years, Thailand has implemented a number of water resources infrastructures significantly to support rapid rural development, industrialization, tourism development, domestic consumption, agriculture and other demands (UN-WATER/WWAP, 2007). However, many small-scale water resource projects gave rise to undesirable long-term fiscal burdens on the national government. Results of a survey conducted by the department of water resources in 2010 (Figure 1) indicated that 5% of

small-scale water resources projects in Northeastern Thailand were neglected or abandoned while 18% required reconstruction due to collapse of project operation and lack of maintenance and repair management. This malfunction of existing facilities due to poor maintenance is typical case of collective action problems in small-scale water resource projects. In order to promote collective stakeholder action, Thailand has exercised integrated water resources management (IWRM) to empower and delegate stakeholders to participate in water resources management. However, experiences in

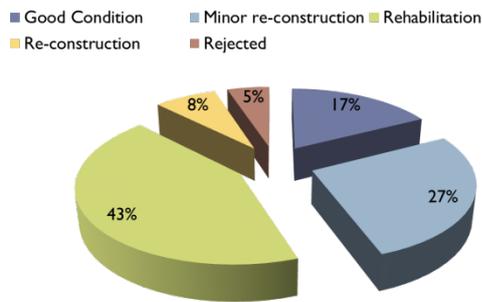


Figure 1 Small scaled water resources project conditions in Northeastern Thailand

Thailand showed that local participation was perceived as project consulting to locals taking place only after these projects have been planned. In addition, local stakeholder hold the attitude that water is freely accessibility, and government provides project for free of charge. This attitude jeopardizes issue of project sense of ownership and sharing responsibility (Lien, 2003; UN-WATER/WWAP, 2007).

The objective of this paper is to identify causes of failure in malfunction small-scaled water resources project employing failure knowledge database concept. As a result, causes-action-results regarding failure small-scaled water resources project were analyzed. In addition, to loosen some constrains that hinder effective water resources project management, encouragement of stakeholder analysis application, modification of some regulations related to current water resources project management scheme and encouragement of multi-stakeholder management approach in Thailand water resources project management are proposed.

2. ANALYSIS OF PROJECT FAILURE THROUGH FAILURE KNOWLEDGE DATABASE

Failure knowledge database was developed based on learning experience and lesson learns from failure for the purpose of avoiding and preventing project failure (WANG, PAN, & LI, 2010). A failure

consists of three basic elements; “Cause”, “Action”, and “Result”. A cause is described in response to which a person takes action, leading to the resulting failure. In this reasoning, action can be regarded as the human intervention that links the cause and result of the failure, neither cause alone nor action alone will lead to failure, and failure can only result when both cause and action exist. Structure of cause, action and result leading to failure can also be presented in form of a diagonal scenario (Hatamura Y. , 2005; Hatamura & Iino, 2004). A sequence of events based on failure knowledge database is shown in Figure 2.

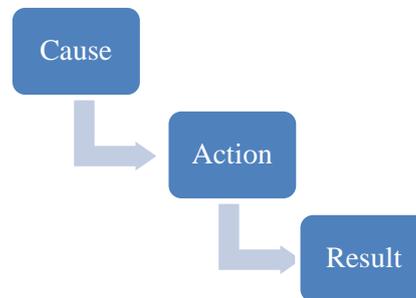


Figure 2 Three basic elements of a failure case (Hatamura & Iino, 2004)

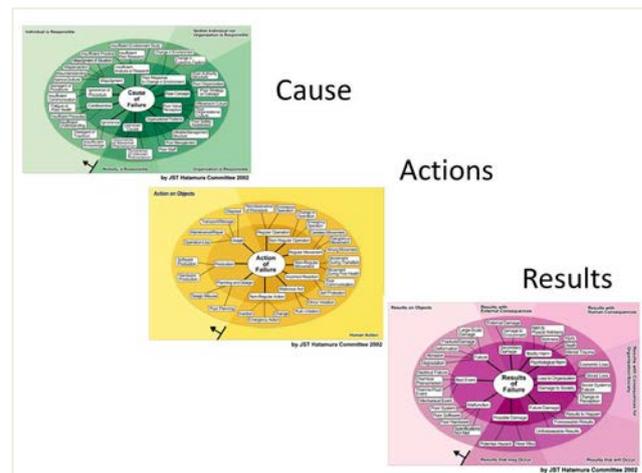


Figure 3 Failure mandalas (Hatamura Y. , 2005)

Elements of failure is expressing through three Mandalas, one each for Cause, Action and Result, referred to as “Failure Mandalas” (Figure 3). The following list summarizes the top level key phrase of Cause, Action and Result in Failure Mandalas

(Hatamura Y. , 2005).

- Cause
 - Individual is responsible
 - Organization is responsible
 - Neither individual nor organization is responsible
 - Nobody is responsible
- Action
 - Action on object
 - Human action
- Result
 - Results on objects
 - Results with external consequences
 - Results with human consequences
 - Results with consequences for organization and society
 - Result that will occur
 - Result that may occur

2.1 Thailand small-scaled water resources project failure analysis

The cause, action and result were developed based on the failure knowledge database to focus on the key failure of small-scaled water resources project in Thailand. The results of analysis are presented in Figure 4.

Regardless of flood and drought, it was observed from the analysis results that one of the major causes of project failure is associated with lack of project stakeholder management. This may be part a result of weakness in the water resources policy, poor regulatory management and not well-developed arrangements for decentralization (Lien, 2003). To address stakeholder management problem in small-scaled water resources project, the necessary

measures to establish involvement of related stakeholder in project development and management process is needed. In an attempt to improve stakeholder involvement in water resources project management in Thailand, the following recommendations are proposed; 1) *Encouragement of stakeholder analysis application*, 2) *Beneficiary contribution approach to current water resources project management scheme*

3. ENCOURAGEMENT OF STAKEHOLDER ANALYSIS APPLICATION

Current water resources management paradigm has moved towards stakeholder participation approach, which the purpose of participation is adjusted by the institutions' intention who promote it (ADB, 2001; GWP-TAC, 2000; Neef, 2008). Stakeholder participation in Thailand has been strongly promoted by the Thai government and supported by major international donor, such as the Asian Development Bank and World Bank. However, it seems the Thai government agencies, mainly the Department of Water Resource (DWR) and the Royal Irrigation Department (RID), were reluctant to introduce a collaborative management approach where all relevant stakeholders are involved from the project development phase and encouraged to work together to manage a water resources project.

On the measure of stakeholder participation and collaborative management encouragement, a systematic tool emerged is a stakeholder analysis. Stakeholder analysis in natural environment has largely been recognized since the 1990s due to a number of unsuccessful projects regarding non-cooperation or opposition from project related stakeholders (Grimble, 1998).

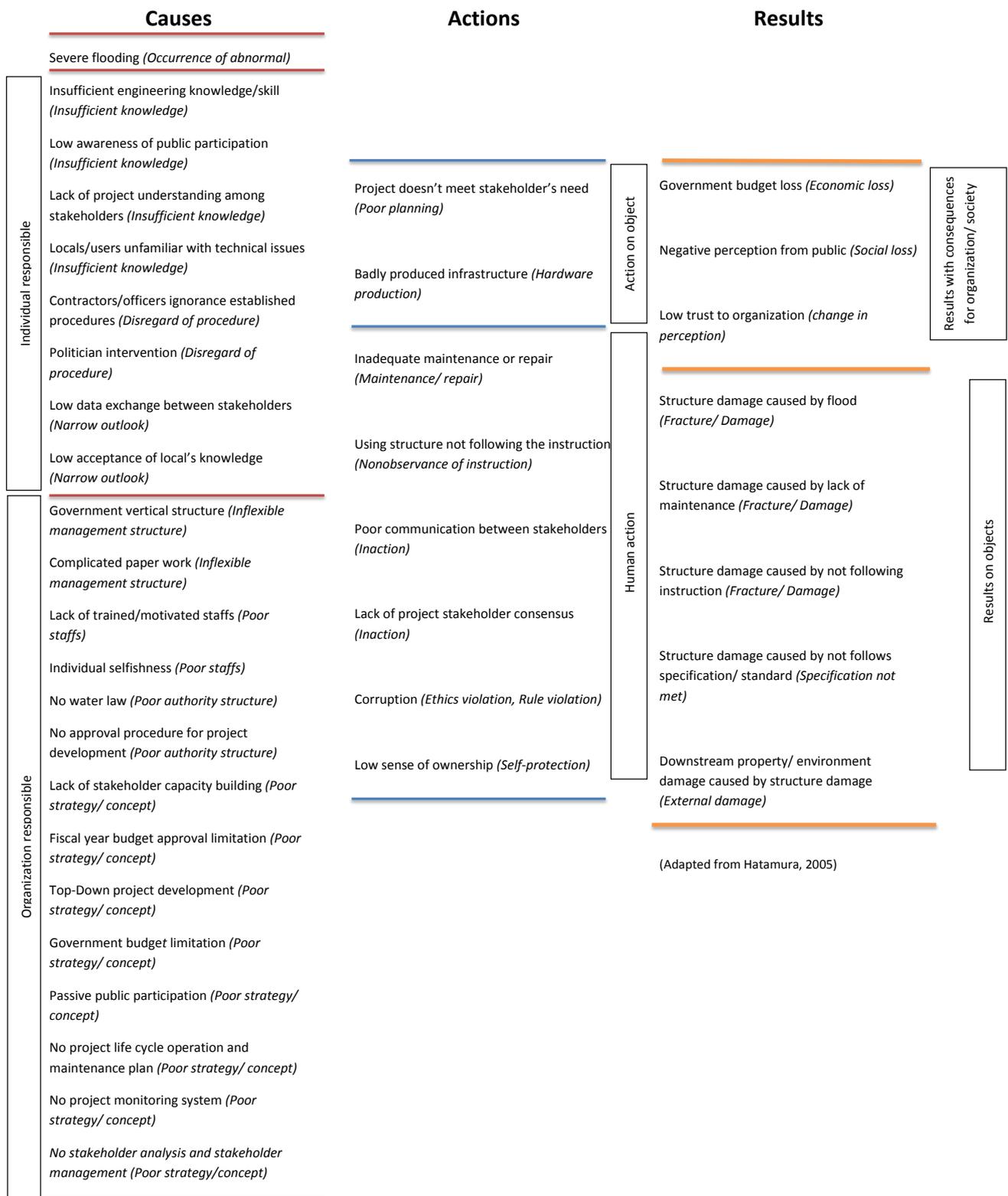


Figure 4 Failure analysis of Small-scaled water resources project in Thailand

Stakeholder is generally defined as an interested individual, group or institutions that may be impacted by, or can influence the success or failure of a project (Bourne, 2009; IUCN; Joep, 2006). Stakeholder analysis is a process to understand existing pattern of stakeholder interaction involving

project or resource by means of stakeholder identification, stakeholder interest and influence assessment and development of stakeholder participation and communication plan. A number of literatures have conducted stakeholder analysis carried out by the essential analytical steps in Figure 5 (CEDARE, 2007; Daiwen & Minquan, 2009; Prell, Hubacek, & Reed, 2007; Maheshwari & Pillia, 2008; KBR, 2008).

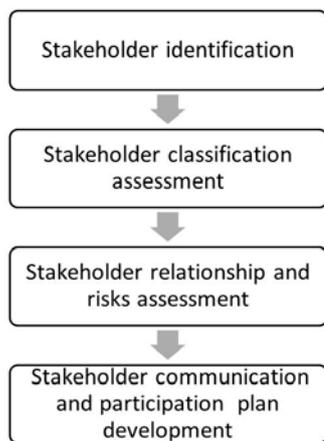


Figure 5 Stakeholder analysis steps

Aiming to introduce a collaborative management and involve relevant stakeholder in Thai water resources project management, the possible way is to encourage Thai government agencies to conduct project stakeholder analysis which can start from the establishment of in-house policy for stakeholder management in water resources project development. This requires interaction and cooperation among divisions or bureaus inside the organization. Taking the Department of Water Resources (DWR) as an example, project feasibility, project design of development water network, management and improvement of project operation and maintenance is under responsibility of the Bureau of water resource development and the Bureau of water resources conservation and rehabilitation. At the same time, the Bureau of mass promotion and

coordination takes charge of promotion of participation in water resources management, conservation and rehabilitation work as well as building awareness among government officers and private sector work. Technicians and engineers in Bureau of water resource development and the Bureau of water resources conservation and rehabilitation are usually not familiar to deal with social and political issues, the negotiations and conflicts among stakeholders or the political process. Interaction and cooperation among these bureaus is essential in order to lead to an integrated technical aspect and participation aspect for a water resources project. However, the actual coordination depends on official staff attitude and interest toward the coordination and whether or not person is enthusiastic about it. This interaction and coordination scheme is also required to the DWR regional offices. The key advantages to the government agency from employing stakeholder analysis are:

3.1 Better understanding in stakeholder conflict and trade-off

Conducting stakeholder analysis is a way to identify and understand stakeholder interests, characteristics and circumstances. In addition, it can represent existing patterns of interaction between stakeholders which could assist to identify conflict of interests and trade-off among stakeholders. Conflict is defined as a situation of competition and potential disagreement between two or more stakeholder groups over the use of resource (Grimble, 1998). A trade-off is defined as a decision making unit to balance conflict objective's values of a stakeholder group (give up one to gain another). Conflict and trade-off is likely to occur together when the resources become scarcer or highly valued, and it is a common issue in water resources management. Considerable values from potential

conflicts and trade-off consideration among stakeholders by stakeholder analysis could assist government agencies to improve the selection and design of a small-scaled water resources project and ensure project outputs to meet the needs of stakeholders (Grimble, 1998). To put it into practice, stakeholder analysis should be conducted at the earliest stage possible in decision-making especially when project is being conceived.

3.2 Facilitate public participation and improved decision making

Public participation concept in small-scaled water resources project in Thailand was introduced by the Ministry of Natural Resources and Environment (MoNRE), new established ministry after the 2002 Bureaucratic Reform in Thailand. In addition, under the trend of accelerating decentralization, the establishment of the sub-district (Tambon) administrative organizations (TAOs) could encourage locals to more participate in project decision-making. These increasing of stakeholder participatory approach have been evidenced through a series of consultative and discuss among project related stakeholders. However, there remain many serious problems in stakeholder participation issues that need to be resolved. For example, in some cases the government officials are doubted in locals' knowledge and capability to manage their own resources associated with lack of knowledge to moderate participatory event due to having been trained in technical issue. Furthermore, public participation was seen as involving higher number of stakeholder in information delivery rather than engagement of stakeholder which is denoted that participation is used as a label to gain legitimacy for project implementation (Neef, 2008).

Based upon the previous experiences and lesson learned, stakeholder analysis could incorporate

stakeholder value and facilitate stakeholder participation. Stakeholder analysis can be used as a primary participatory tool for the government officials to identify project related stakeholders and develop a common understanding among stakeholders. For small-scaled water resources project in Thailand, stakeholder analysis is encouraged to conduct with the active participation of related stakeholders where two-ways exchange of information between stakeholders and the government as equal partners. In worst case scenario, level of participation in stakeholder analysis may take passive consultation where related stakeholders simply provide information for the analysis (Reeds, 2008). Once the stakeholders participate to the project, it could lead to improving the quality of planning and decision-making, the positive image to government and development of a sense of ownership and responsibility among stakeholders toward a project.

3.3 Develop stakeholder relationship management plan

One of outputs form stakeholder analysis is a stakeholder relationship management development. The information and results from stakeholder identification, stakeholder classification and assessment and stakeholder relationship and risk assessment are inputs into the stakeholder relationship management plan. Success in stakeholder relationship management is likely to achieve through a continuous communication among stakeholders. The bases on effective communication plan comprise of facts and information regarding to a project, the effective message format and the appropriate methods and frequency of delivery.

Facts and information regarding a project should be provided to related stakeholder in every project lifecycle stage to ensure mutual

understanding between the government officials and other stakeholders. If it is possible, the project information should be communicated or disseminated in local language without too much technical terms. A variety of tools can be used depending on site conditions, level of literacy, cultures, and attitude of the stakeholders. In addition, how frequency the information is delivered in applicable timeframe must be concerned. The effective of communication also depends on the relationship between sender and receiver, and facilitation skill of the government official field staffs is essential (Jain & Singh, 2003; Reeds, 2008).

4. BENEFICIARY CONTRIBUTION APPROACH TO SMALL-SCALED WATER RESOURCES PROJECT

In Thailand, it has been recognized that the water resources project users or beneficiaries do not appreciate the projects since the projects are provided by the government for free of charge. This leads to lack of sense of ownership and sharing responsibility to the projects and gives rise to project failure (UN-WATER/WWAP, 2007). In addition, it was previously believed that efficient water resources project management would be possible if the water user group is established. However, it was evidenced that it is important not only to have a water user group established, but also long-term commitment of users or beneficiaries for sustainable use of resources and project are sought at present. In order to establish sense of ownership and achieve sustainable use of resources and project, it is necessary to revise some regulations to avoid “free ride” and establish rules for responsibility sharing in small-scaled water resources project. In this section, beneficiary contribution approach and sound project development process and timeframe are proposed.

Small-scaled water resources project is defined

as a project where beneficial area is smaller than 3,000 Rai (4.8 km²), and construction duration is within 1-2 years with approximate cost of 10-15 million Baht (0.3-0.5 million dollar) (Royal Irrigation Department, 2009). The Thai national government bears total expenses for water resources project because most local governments (Provincial level and sub-district/ Tambon level) cannot afford to make this investment by their own financial resources. On the other hand, operation, maintenance and management cost of existing facility are borne by water users or Tambon Administration Organization (TAO) from water charges or TAO financial resource. However, in case of large scale maintenance work due to severe facility damage, the maintenance cost is also borne by the national government.

As stated in the cabinet’s resolution on 17th March 1991, 11th May 1992 and 15th June 1998, in order to develop small-scaled water resources project for the purpose of alleviation immediate suffering and increasing quality of life, there is no compensation for land acquisition in small-scaled water resources project. This regulation has been driving water related government agencies toward implementation of the landowner donation for a project construction. However, negative impacts from a land owner donation scheme have been witnessed including lack of the project appreciation, no enthusiastic in the project operation and maintenance and no sense of ownership. In addition, several high potential projects were canceled due to conflicts on land acquisition during a project reconnaissance phase. In an attempt to solve the problems, beneficiary contribution system is introduced to ensure stakeholder participation. This paper adopted beneficiary contribution from the small-scaled water resources development sector project in rural Bangladesh (Hossain & Islam) and

subsidies for water resource development in Japan (World Bank , 2006).

This approach is a combination of stakeholder management, responsibility sharing and technical matters. Small-scaled water resources project development scheme should be considered as demand driven and identified by the local stakeholder based on water related problem. Moreover, it is required that project stakeholders must be involved in all stages of a project development. Three phases of development process are summarized:

1) Development of project feasibility phase

At the beginning of this stage, problems and needs are identified by locals and proposed to a Tambon Administration Organization (TAO). The TAO will consider a proposed scheme based on available technical and socio-economic information and present to concerned agency (in this paper the concerned agency is referred to the Department of Water Resources). The DWR will conduct reconnaissance study and further preliminary design for the propose scheme that pass all DWR's criteria for project development. After the proposed scheme approval, the DWR will prepare to discuss with TAO and to conduct a project stakeholder analysis. At the end of this stage, the output will be a preliminary design of the proposed scheme, the project information sharing among locals, the TAO and the DWR. The development of project feasibility will take between 3 to 6 months.

2) Water users' cooperative establishment and a project plan development phase

Once the preliminary design of proposed scheme is approved, the DWR will present them to locals and the TAO for detail design discussion including project cost-benefit and compensation for land acquisition issue. After detail design and

compensation for land acquisition issue is decided, a water user cooperative will need to formulate by coordination between the project beneficiaries and the TAO. For the formulation of the water user cooperative, the beneficiaries will be listed along their amount of contribution and signing of agreement, which can be in form of Memorandum of Understanding (MOU), between the water user cooperative, the TAO and the DWR. It was recommended by Hossin and Islam that the beneficiary contribution is calculated to be equivalent to the cost of operating and maintaining the infrastructure for a year approximately 10% of the construction cost. However, the amount of contribution can be suggested by appropriateness and final agreement among stakeholders. Simultaneously, the DWR cooperated with the TAO begins to conduct a project stakeholder analysis to identify and asses related stakeholders. The DWR will conduct final design and cost estimation then propose the project to River Basin Committee (RBC) in the basin area for river basin plan approval. The final cost estimation for a project budget approval is the project cost subtracted from the beneficiaries' contribution. After the river basin plan approval, the project will go through budget approval procedure to allocate the budget to the proposed project. In this stage, an operation and maintenance plan and a monitoring and evaluation system is prepared. The final outputs of this stage are project detail design and cost estimation, stakeholder analysis results, water user cooperative organization establishment, a project operation and maintenance and monitoring plan and MOUs. This stage may take about between 6 months to 1 year.

3) Construction and operation and maintenance phase

If the budget for the proposed construction is approved by the cabinet, the DWR will precede the

contractor selection as per the Thai government procurement. As soon as full beneficiary contribution is fulfilled, the DWR can release funds for work. After the project construction is completed and starts to operate, the DWR will take a role of supporter to assist the water user cooperative in operating and maintaining the project as well as

resolving conflicts of interest that may occur.

This proposed scheme may facilitate responsibility sharing and sense of ownership to related stakeholder and encourage multi-stakeholder management scheme to the government official which could eliminate failure small-scaled water

Existing project development scheme

Beneficiary contribution project development scheme

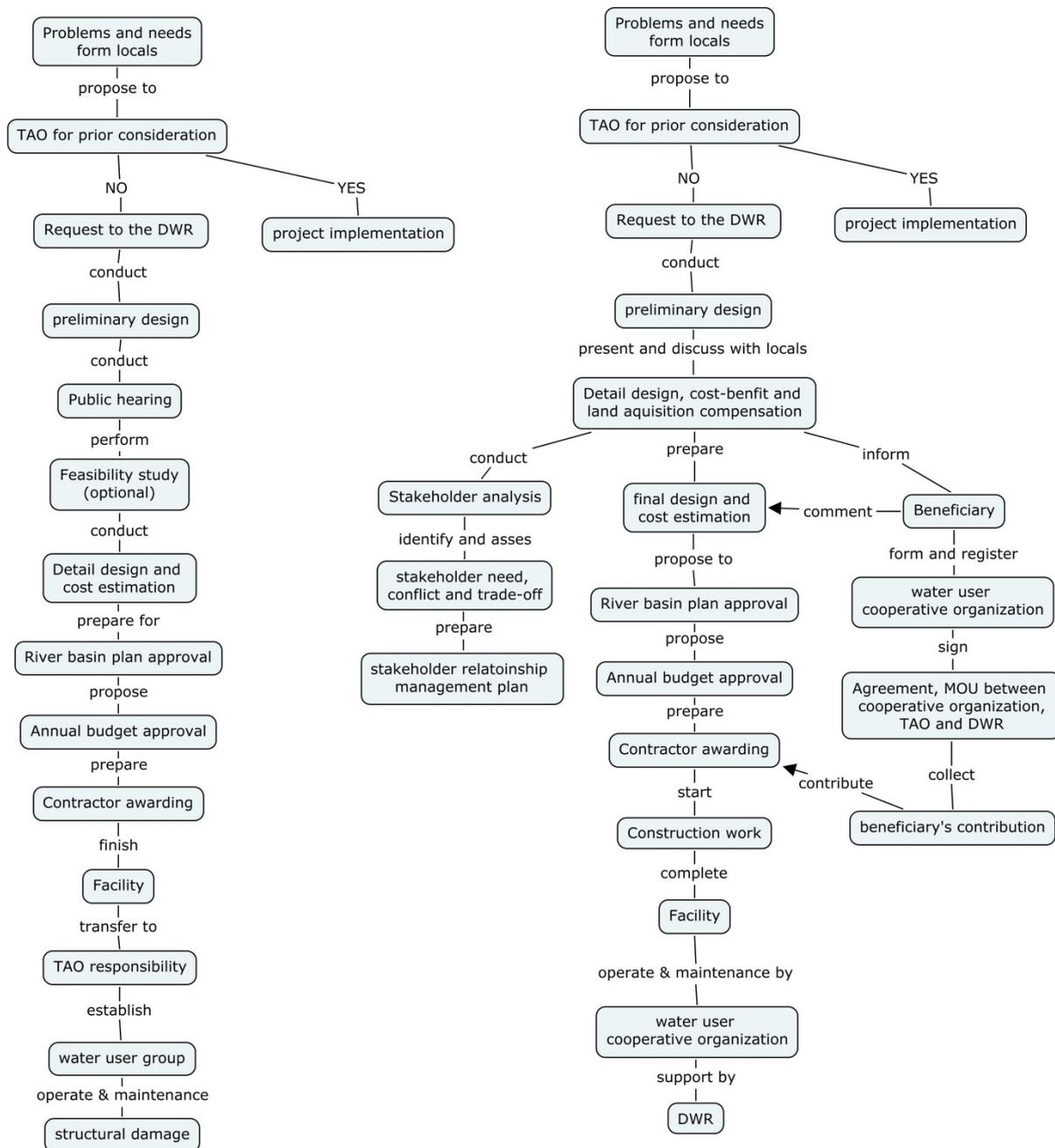


Figure 6 Comparison between existing project development scheme and beneficiary contribution scheme

resources project in Thailand. The comparison of existing project development and propose beneficiary contribution is presented in Figure 6.

5. CONCLUSIONS

The small-scaled water resources project failure analysis illustrated that one of the major causes is lack of stakeholder management and participation in the planning process. The existing project development scheme is considering as public hearing style rather than public participation. It seems that the Thai government agency is lacking of experiences with multi-party approach where most of the government officials are familiar with technical issues and not familiar to deal with social and political issues, the negotiations and conflicts among stakeholders or the political process. In addition, the government may fear to lose control or afraid that multiparty participation could threaten the confidentiality of the government proceeding. To cope with these problems, encouragement the government official to conduct stakeholder analysis and beneficiary contribution approach are proposed in this paper. In parallel, capacity building for both government officials and locals is needed to increase awareness and knowledge regarding to water resources project management. There is no guarantee for these proposed issues. However, the proposed issues could offer the involvement of stakeholder right from the start and result in improved project development and management and may decrease number of failure small-scaled water resources project in Thailand.

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