

## The New National Water Law for Improving Water Management Problems in Thailand, Focused on Water Allocation and Water Resources Conservation

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### ABSTRACT

Thailand encounters water problems annually. Water demand still increases continuously for supporting population growth, economic expansion, and urbanization. Water becomes a limited resource. Water conflict between upstream and downstream areas is intense and it expands widely. Therefore, water management efficiently is an essential issue for Thailand. In 2019, the Thai government established the Act on Water Resources B.E. 2561 (2018). They expected this law to improve water management problems sustainable. The research aims to analyze the new water law to improve the water management problems, focused on water allocation and water resources conservation. The author starts the research by gathering water management problems in Thailand. The problems will be connected to the new national water law by separating into four groups include 1) the equal water allocation 2) the management of water crisis 3) the management of water resources conservation, and 4) the integrated water resources management. After that, the provision of the new national water law is analyzed to present the concept and sensitive aspects that correspond to the improvement of the problems. The author will focus on water allocation and water resources conservation. The provision in chapter IV and chapter VI of the law will be analyzed. Finally, the author proposes the economic instrument mentioned in Water Framework Directive (WFD) to guideline water management improvement in Thailand. The result of this research can encourage the Thai government for using the new water law to improve water management. Incentive measures such as Non-Monetary Voluntary Agreement, Payment for Ecosystem Service (PES), and Water Tax Reduction can solve the sensitive aspects when the government implements the new national water law. Furthermore, the measures can be applied to improve the problems of water allocation and water resources conservation.

**Keywords** Water; Law; Allocation; Conservation

### INTRODUCTION

Thailand encounters water problems annually. The primary source of water is rain. Thailand is located in the Southeast Asia continent, which is a tropical zone near the equator. The influence of stormy winds brings the rain in Thailand moreover El Nino and La Nina phenomenon can be the critical factor for the variable rainfall.<sup>1</sup> The consequences are water shortage and flooding in various areas. Currently, Thailand faces a water imbalance. Water use in Thailand still increases continuously for supporting population growth, economic expansion, and urbanisation. Water becomes a limited resource. Water conflict between upstream and downstream areas is intense and it expands widely. Therefore, water management efficiently is an essential issue for Thailand.

Thailand manages water resources which are divided into surface water and groundwater. The State Irrigation Act B.E. 2485 (1942) and People Irrigation Act B.E. 2482 (1939) provide the regulation of surface water for irrigation areas. In contrast, the Groundwater Act B.E. 2520 (1977) indicates the protection of groundwater resources, the licensing of groundwater exploitation, and groundwater utilisation control.<sup>2</sup> For the last decade, surface water outside irrigation areas was not covered by a specific law. Over 48 agencies manage water in a different direction and lack connectivity. It is the cause of budget loss and disintegrated water problem-solving.<sup>3</sup>

Thailand attempts to achieve the sustainability of water security by reforming water management. In January 2019, the Thai government adopted the Act on Water Resources B.E. 2561 (2018) to be the leading law for national water management. This new water law was adapted from involved laws and improved by related water organizations, including water specialists, government agencies, business

representatives, and communities both upstream and downstream. It is a challenging aspect that this new national water law is expected to improve water management problems in Thailand sustainable.

**METHODOLOGY**

The research aims to analyze the new water law to improve the water management problems, focused on water allocation and water resources conservation.

The methodology of research is a qualitative method by analysing secondary data and interviewing. The research comprises three parts including 1) Problems of Water Management 2) Concept of Water Resource Act and Sensitive Aspect 3) Guideline of Water Resources Management.

The author reviews the water management characteristics of Thailand to find the gaps which are possibly the cause of water problems in the country. Moreover, the literature review covers the process of the new national water law establishment to ensure the quality of the law involved with water users in every part. The author studies the economic instrument mentioned in the Water Framework Directive. The concepts of the economic instrument and incentive measures will be analysed to adapt to water management in Thailand.

After understanding water problems and the gaps which are the cause of water management issues in Thailand, three parts of the research will be scrutinised.

The first part, it starts with addressing the problems of water management in Thailand. The author collects the issues of water management from the Thai government reports include the Office of the National Water Resources, the Department of Disaster Prevention and Mitigation, and the Department of Water Resources. Furthermore, the author joins with the online conference in the topic “The Project of Water Management which relevant to the Development of Thailand’s Economic and Social”. The discussion is presented by specialists from the University of Thammasat and Thailand Science Research and Innovation. They examine water management criteria by considering the balance of water demand and water supply in different river basins of Thailand.<sup>4</sup> Besides, the author searches academic articles and books with the keyword “problems of water management in Thailand”. The author separates water resources problems into 4 groups following the new national water law.

The second part will diagnose the concept of the new national water law to analyse the water rights mentioned and the sensitive aspect of the law in a practical process. The author studies the new water law from the Act of Water Resources B.E. 2561 (2018). After that, the author collects the recommendation of sensitive aspects in the law for the practical process from the online conference and academic articles.

In the third part, the international policies and water management of other countries will be adapted for proposing a water management guideline. The researcher chooses “the equal water allocation” and “the management of water resource conservation” from the second part and advances them with a water management guideline. “Economic Instrument” mentioned in the Water Framework Directive of EU becomes the keyword of this part. Moreover, the author also uses interview methodology in this part.

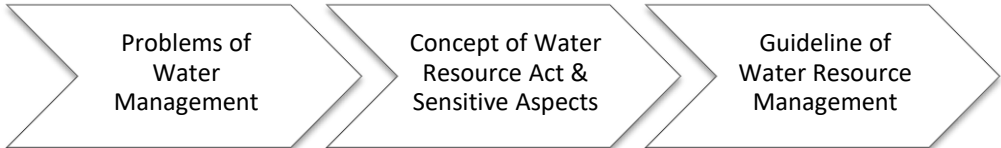


Figure 1 Process of Research Methodology

## **RESULT AND DISCUSSION**

### **1. PROBLEMS OF WATER RESOURCES MANAGEMENT**

The author examines water resources management problems in Thailand for addressing the cause of water problems. Nine issues mentioned as follow;

1. Water demand increases whereas water use prioritization are still lack control.<sup>5</sup>
2. Wastewater from the leakage of the agricultural chemical and household activities is ignored especially in the upstream areas.<sup>6</sup>
3. Illegal deforestation causes severe landslides and floods in the monsoon season.<sup>7</sup>
4. Land-use change affects biodiversity loss.<sup>8</sup>
5. Most of the building structure obstructs water flow in urban areas.<sup>9</sup>
6. Insufficient control of water use is the cause of water shortage in the dry season.<sup>10</sup>
7. Water users do not concern about water value because it is free.<sup>11</sup>
8. There is a conflict between water users in the upstream and downstream areas in the biophysical and social dynamic.<sup>12</sup>
9. Institution complexity of water administrators bring the overlapping implementation.<sup>13</sup>

Nine issues are combined into four groups for diagnosis in the next part of the research. They include 1) water allocation issue 2) water crisis management issue 3) water quality and water resources conservation issue and 4) integrated water resources management issue.

### **2. CONCEPT OF WATER RESOURCES MANAGEMENT IN THE ACT OF WATER RESOURCES**

#### **2.1 EQUAL WATER ALLOCATION**

The problems of water management, which lack of prioritisation control and lack of awareness to save water, can improve by promoting equally water allocation and advocating the value of water. People can reach water and pay for it in a reasonable case. The concept in the Water Resources Act will support the actions and recover these issues.

Section 7 of the law formulates the basic rights of people to access public water resources. People have the right to use or keep public water resources in necessary volumes without causing damage to other people. Water allocation is identified in chapter 4, which classified the use of shared water resources into three types.

The law is established to be the primary water management law in public water resources. It is an important feature that the practical process will be diagnosed for achieving equally water allocation under this law. The researcher presents the sensitive aspects of the practical approach in this part as follow;

1. The conflict between water users in a different economic sector can occur. There is a diversity of water quantity, water quality, and geography related to the level of gravity. People who live in upstream areas have more occasions to reach water sources than downstream people. Suppose downstream areas require a majority of freshwater. In that case, they must approach the negotiation with people in upper areas for saving water, treating water sources, and launching more water to down areas.
2. The explicit criteria of water payment must be expressed. If water users in type two and type three are required for licence permission and water charge, the government must show the definition and differentiation between type one, type two, and type three. Moreover, the government must explain the method to manage fees from water charges for transparency of payers.
3. Some businesses invest by paying more money for using more water. It is not a target of the law. The law determines water payment to increase awareness of water users and stimulate them to save water.
4. Charging water can be the cause of product price raise. The producer must pay more for water because it is an essential material. If the cost of the product increases, the burden of indirect

water payment owned by general people will increase. The government should concern about this issue.

## 2.2 MANAGEMENT OF WATER QUALITY AND WATER RESOURCES CONSERVATION

Wastewater from the leakage of the agricultural chemical and household activities, illegal deforestation in the watershed area, and land-use change are the problems of management of water quality and water resources conservation. The Water Resources Act determines the provision to control and improve these issues.

Chapter 6 of the law is the conservation and development of public water resources. It focuses on prescribing and regulating for conserving and developing public water resources. The actions, which are the causes of pollution, danger, or damage to shared water resources, will be prohibited. Section 73 of the law concerns the environmentally protected area. The exploitation of the land, which affects public water resources, will be controlled. Section 78 advocates water users to preserve the ecology in their area. Any action causing water resources deterioration will be prohibited, such as releasing toxic substances in the river and discharging untreated water to public water resources. Water users are prerequisites for installing equipment or measures to examine water quality harm, prevent water resources damage, and resolve destroyed water sources in their area. The structure affecting public water resources will be required to be removed.

A sensitive aspect of managing water's quality and water conservation is the conflict between government officer who uses the law and people who take advantage of the area for their livelihood. The law provides the right for a government organization to determine the environmentally protected area. It can affect original people who use that area for their agriculture and habitat. For instance, there is a conflict of local people in Ka-Ching Swamp Forest, Chumporn Province, Thailand who disagree with the enforced legislation for managing and conserving this swamp forest. They think the ruling will obstruct the locals in terms of habitat and generating income. They ignore the law and still continuous destroy swamp forests for their demand.<sup>14</sup>

### 3. Guideline of Thailand's Water Management

Author proposes the measures for improving problems of water allocation and water resources conservation. Water Framework Directive (WFD) is the tool that the author uses for finding the guideline for water management.

WFD is a common framework for water management in Europe. It operates within river basin districts. The purpose of WFD is the protection of inland surface water, transitional waters, coastal water and groundwater. "Environmental good status" is the goal of WFD. Article 5 of WFD prescribes the economic analysis of water use and the environmental impact of human activities. Furthermore, article 9 of the directive determines the cost of water service. Water price will ensure efficient water use and contribute to the environmental objective.<sup>15</sup>

The economics of water use and environmental impact will be considered by using an economic instrument. Moreover, incentive measures are promoted to support equal water allocation. Besides, pollution control and water infrastructure are important factors for water resources conservation. There are instruments for achieving equal water allocation and water resources conservation as follows;

**Non – monetary voluntary agreement** is the process that water users support the management with willingness without enforcement. Water users in different areas set the voluntary agreement to allocate water from upstream to downstream.<sup>16</sup> For example; sharing water from Klong Wang Tanote supports the EEC area. This process can reduce the conflict of water users between different sectors. Moreover, the government can provide the agreement for farmers to motivate them to grow organic plants and avoid chemical fertilizer. It can decrease water contaminated with a chemical substance.

**Payment for Ecosystem Service (PES)** is an incentive measure that government uses for motivating water users to conserve water resources. This measure can encourage the cooperation of water users in the different sectors by supporting the compensation. The compensation can be a

convenient infrastructure or money for supporting the community's activities. PES is not only decreasing the conflicts; but it also increases awareness of water users in the long term. Furthermore, ecosystem will be conserved by water use.

**Product evaluation** is the instrument to check and control the balance between water use and the value of goods. The instrument considers water use efficiency. The local government has to concern about water footprint and water use efficiency in each region.<sup>17</sup> Each crop requires a different quantity of freshwater. Some areas use water for their plants that have less value in the area, and they cause water stress. Product evaluation will support the government to control the prioritization for allocating water to the suitable part which gives more value.

**Water tax reduction** can reduce the production cost. Government should support industries by reducing the water cost for an industry that uses innovative processes or improving the procedure for saving water, treating wastewater, and producing products to encourage the awareness of water value.<sup>18</sup> This instrument can motivate the industries to provide efficient water use in the production process and produce more water-saving products. Besides, this measure can improve the problem of product price raise because of the production cost increase.

**Subsidisation** is the instrument by which government supports subsidisation to industries, farmers, or entrepreneurs who suffer from water scenarios. When the country faces a water crisis, subsidies are adapted to reduce the production cost, shift downward supply trend, reduce price, and increase the number of goods in the market. It can be price support, subsidised loan, direct payment, and tax or charges relief.<sup>19</sup> The process of subsidisation can reduce the side effect of water payment in water allocation which is possible to affect product price raises.

**Other incentive measures** include encouragement of 3R. The government will support the measure of reducing reuse and recycling continuously. Furthermore, government convince entrepreneurs to build water resource in their area.<sup>20</sup>

**Polluter pay** stimulates the responsibility of contamination sources. Industries or activities which are the cause of pollution have to pay for polluted treatment. The industries have to get the licences and establish a plan to treat the wastewater before releasing them to the public water sources.

## CONCLUSION

As the first and second parts of the research, water allocation and water resources conservation are the essential water management problems in Thailand. Water will have more value by promoting equally water rights and efficiently water allocation in the Water Resources Act. The law reveals water users, who use more water, have to pay more money and present their water management plan. Moreover, the law determines the conservation and development of public water resources. The ecosystem of water sources will be concerned and water quality will be prevented. However, there are sensitive aspects of the law that governments have to consider when using the law in a practical process. Economic instrument concept and incentive measures in part three are adapted to improve water management and complete the sensitive areas of the law. It corresponds to the Water Framework Directive (WFD) which mentioned about economic analysis of water use and the environmental impact of human activities. Non – monetary voluntary agreements and PES can reduce conflict of water users and they can increase water awareness. Product evaluation can support the government to prioritize water use. Water tax reduction and subsidization can motivate industries to provide efficient water use. They can reduce the side effect of water payment which is possible to affect product price raises. Besides, Pollution pay can control water quality. The author recommends that there are not only economic and environmental parts that will be concerned for improving water management problems; the social impact has to be considered.

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