

# LAWS AND POLICIES RELATED TO WATER RESOURCE MANAGEMENT OF THAILAND

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## ABSTRACT

*The results of the research revealed that the laws related to water resource management in Thailand have been driven by mechanisms at the national level, namely the National Water Resources committee, and the regional level, namely the Watershed and Area Level Committee, only with the government on water resource management. The government applied the same rules and regulations to people in every locality, but the context of one area may differ from another, making compliance difficult and potentially disengaging citizens to manage water resources at the local level. This would affect local water resources, resulting in water scarcity. However, if a common rule can be established between the people and the state by means of the people agreeing to one another and recognizing the damage that will occur if they do not join in to take care of the water resources, the people will be united to comply with the rules that participates in the agreement and allows people to participate in the management of water resources.*

**Keywords:** Water Resources Law, Water Management Policy, Public Participation

## INTRODUCTION

The development of the country and the world over the past two decades has seen an expansive economic and industrial sector, exponentially increasing the demand for water, (Boretti, & Rosa, 2019; Mehran, AghaKouchak, Nakhjiri, Stewardson, Peel, Phillips & Ravalico, 2017). Especially for agricultural water and energy production. (Hunt, Stilpen & de Freitas, 2018). This results in purified water becoming more precious. It is expected that by 2025, two thirds of the world's population will be living amidst the pressure on water in terms of both quantity and quality. In addition, the trend of global warming will be a key factor, resulting in more severe water shortage. (Javadinejad & Jafary, 2020). At the same time, the water-borne disaster is increasing every year, causing many problems. Lack of good management will be an ongoing problem (He, Harden, & Liu, 2020). Water is essential to livelihood, agriculture, and economic development (Okumah & Ankomah-Hackman, 2020). People use natural water, such as rainwater, surface water, and groundwater, which were natural products that we cannot increase or reduce the amount that is available in nature according to our needs. Some years there may be drought which causes the water in rivers and streams to be so little that they cannot be shared thoroughly. Some years it rains so much that it was damaged due to flooding of property and communal areas (Chalermprakiet, 2018). Sewage or water pollution occurs in many areas. These are water crises occurring in every region of Thailand and are relatively similar almost every year (Pramote, 2014).

Environmental problems are becoming more and more common. Environmental problems that arise in Thailand are due to the unpredictable development of the industrial economy and technology in solving environmental problems. This causes environmental problems and also affects public health (Gupta, Yan, Singh & Mo, 2020). Water resources, defined as natural resources, are those that are used for consumption, body cleansing, cultivation, agriculture, industry, water transport, and energy production. Water resources

were also a type of resource that can be renewable over time (Goytia, 2021). The water cycle is therefore an important component of the population. It is also the source of life such as plants, animals and contributes to the abundance and balance of the ecosystem. The objectives of this research were to study water resource management in Thailand and to study the law related to water resources and find ways to manage it efficiently in the future.

## RESEARCH METHOD

The research qualitative research was to study the laws and government policies related to water resource management in Thailand from relevant documents and visit the area to study the water resource management of communities in the form of reservoirs and irrigation in Khlong La Subdistrict, Khlong Hoi Khong District, Songkhla Province, Thailand from government officials and people who had stakeholders in community water management by in-depth interview with 30 people.

## LITERATURE REVIEW

Water management not only has laws as a tool for organizing, but also need to strengthen society as society develops, grows and becomes more complex (Musavengane & Kloppers, 2020). The mechanisms to manage the happy society must therefore be considered in the management of water resources. In the present environment, we must manage and use water resources in a holistic way of thinking and operating (Giordano & Shah, 2014). We had to look at the events that may arise and find a comprehensive systematic solution (Da-ping, Hong-yu & Dan, 2011). We must view everything as a dynamic in which all dimensions were interconnected, especially water, soil, and human resources, which were now important production.

Sustainable water resource management refers to the management approach that emphasized the awareness of the value of water to every part of society. Conserving natural resources means the proper use of natural resources in an intelligent, cost-effective, and optimal way (Benson, Gain & Giupponi, 2020) to contain original quality with minimal loss. Almost all resource types must have a sustainable use plan (Langat, Kumar & Koech, 2020), (Olawuyi, 2020), which needs to be plan to suit the resource. Therefore, the principle of public participation was essential (Galvez, Rojas, Bennison, Prats & Claro, 2020) and was important to the development of the country because the people were directly affected by the environment. (Medema, McIntosh & Jeffrey, 2008).

## RESULT AND DISCUSSION

Most people in Thailand had always been in agriculture. Thai way of life was attached to water, which was evident from the fact that people tend to settle in their homes close to the water. Having a career in agriculture was very important to use water. At present, there were many forms of water resource management (Manukhachorn, Popradit, Cheentam & Nakhokwik, 2021), such as collecting water in the form of dams, weirs, reservoirs, ponds, etc. allocate water to humans, animals, plants that can be consumed. However, with the current situation, water crises were increasing in all areas (Veiga & Magrini, 2013) such as cultivation water, agricultural water, domestic water, and water use for industry. While the quantity and quality of natural water sources in many areas was becoming worrisome. Many areas experienced unusually dry conditions both in the rainy season and hot summer. Although these things normally occur due to variations in nature and the environment change. Human beings have suffered a lot, so there was more government action to provide more water resources and develop water resources management to make the most of benefit. (Tongkachok & Karnjanawat, 2019).

Water use and demand for water was increasing in all watersheds. Industry, agriculture, consumer and consumption, tourism, and social and cultural development were among the activities that generate an increasing demand for water. In addition, there were also invasions of wetlands, the expansion of housing estates, industrial factories, the development of transport without planning that could invade wetlands or even introduce toxic contamination to water bodies (Youyuenyong, 2016), industrial and community wastewater problems, and rapid urban and industrial expansion (Jaderojananont, 2020). Besides, the demand for water use had increased, resulting in wastewater due to the fact that the water that was drained into rivers, canals from industrial factories and communities was not pre-treated and caused sewage problems in natural streams. Therefore, it was imperative that the reservoir water was released to drive the wastewater. This partially wastes water that should be utilized. Hence, people of all locales were becoming aware of this issue, a warning sign that water shortages were emerging around the world. People should have a shared consciousness that they must help each other to take care of the use of water sparingly and economically so that water can be used completely forever. Therefore, the concept of decentralization of public services, management of natural resources and the environment to local governments and empowerment of local communities (Gain, Rouillard & Benson, 2013) in the management of natural resources and the environment, which makes developing or solving resource problems more efficient.

For Thailand, it can be said that the free use of water, the maintenance, maintenance and conservation of water resources, covering natural water sources, both in the area of land water, groundwater, was the development of water sources to increase the amount of water to be sufficient to the need for water for further use. Legal measures for the conservation of water and water resources were a tool for more orderly human behavior control and regulation.

Thai water resources management law and water resource management organization structure had national, river basin level organizations, and area level.

**There Shall be a Commission Called the “National Water Resources Commission” called in Brief “N.W.R.C.”, Consisting of:**

The Prime Minister, as Chairperson;

The Deputy Prime Minister entrusted by the Prime Minister, as Vice Chairperson;

Ex officio members, *viz*, the Minister of Agriculture and Co-operatives, Minister of Transport, Minister of Natural Resources and Environment, Minister of Energy, Minister of Interior, Minister of Industry, Secretary-General of the National Economic and Social Development Board, Secretary-General of the Royal Development Project Board and Director of the Bureau of the Budget;

Six members representing drainage basin committees, selected from members of drainage basin committees representing water user bodies, members of drainage basin committees representing local government organizations and qualified members of drainage basin committees;

Four qualified members appointed by the Prime Minister from persons having apparent knowledge, expertise, experience and works, for not less than five years, in agriculture, water resources, town and country planning, environment or industry.

The N.W.R.C. has the duties and powers in connection with water resources administration in order to achieve the purpose of integrating the use, development, management, maintenance, rehabilitation and conservation of water resources with a view to uniformity and has important functions and powers:

To prepare policies and the master plan on water resources administration in line with national strategies for submission to the Council of Ministers for approval;

To consider and approve action plans of State agencies and local government organisations in connection with water resources and plans on water resources administration

budgets, as prepared in an integrated manner, in line with the policies and master plan and submit them to the Council of Ministers for consideration in the preparation of annual appropriations;

To consider and approve the master plan on the use, development, management, maintenance, rehabilitation and conservation of water resources in areas of drainage basins as proposed by drainage basin committees

To make suggestions or provide directions to State agencies and local government organizations in connection with the enforcement of laws concerning the effective administration of water resources and the management of water pollution falling within the duties and powers of such State agencies or local government organizations;

To propose matters to the Council of Ministers for resolving problems from the performance of work of State agencies and local government organizations which take action in accordance with the laws, Regulations or Rules binding them insofar as they are concerned with the use, development, management, maintenance, rehabilitation and conservation of water resources, with a view to generating integration as well as public participation;

To issue Rules prescribing measures for promoting and encouraging participation, by the private sector, people and communities concerned, in the use, development, management, maintenance, rehabilitation and conservation of, and any other activities in connection with, water resources; (Water Resources Act B.E. 2561 (2018))

### **There shall be a Drainage Basin Committee for the Respective Drainage Basin Consisting Of:**

Ex officio members of a drainage basin, *viz*, Changwat governors in such drainage basin, the representative of the Pollution Control Division, the representative of the Marine Department, the representative of the Royal Irrigation Department, the representative of the Department of Water Resources, the representative of the Department of Groundwater Resources, the representative of the Department of Lands, the representative of the Department of Fisheries, the representative of the Department of Disaster Prevention and Mitigation, the representative of the Royal Forest Department, the representative of the Land Development Department, the representative of the Department of Public Works and Town and Country Planning, the representative of the Department of Local Administration and the representative of the Department of National Parks, Wildlife and Plant Conservation;

Members of the drainage basin committee who represent local government organizations and become administrators of local government organizations in such drainage basin, provided that there shall be one member from each Province and, in the case where any drainage basin is located in the area of a special-form local government organization, the administrator of such special-form local government organization shall also be a member of the drainage basin;

### **Water User Organization at Local Level**

Persons who use water in neighborhood areas in the same drainage basin have the right to assemble and register for establishing a water-user body with a view to common interests in connection with the use, development, management, maintenance, rehabilitation and conservation of water resources amongst members of the water-user body. The use of public water resources is classified into three types, *viz*: (1) water use of Type One, which signifies the use of public water resources for the living, household consumption, agriculture or livestock farming for subsistence, household industry, ecosystem conservation, customs, public disaster mitigation, communications and the use of water in a small quantity; (2) water use of Type Two, which signifies the use of public water resources for the industry, tourism industry, electricity generation, waterworks and other undertakings; (3) water use of Type Three, which signifies the use of public water resources for a large-sized undertaking which

requires the use of a large quantity of water or possibly has effects across drainage basins or covering large areas. (Water Resources Act B.E. 2561 (2018)).

### **Water Management for the Whole System**

Developing watershed water management systems to increase national water security, manage water for rural communities, manage water for the environment, organize water management systems in crisis situations, and manage watershed water management with good governance.

- 1) Management of drinking water, developing rural water supply system, develops drinking water to meet standard and reasonable price.
- 2) Flood management and flooding, enhancing drainage efficiency, preventing urban flooding, developing and improving the city plan, managing flood areas and water retarding areas, systematic spatial flood mitigation at the river basin and critical areas, support for adaptation and response.
- 3) Water quality management and water resource conservation, reducing wastewater from source, developing and enhancing wastewater treatment system efficiency.
- 4) Conservation and restoration of degraded watershed forests and prevention of soil erosion, conservation and restoration of degraded watershed forests, prevention and reduction of soil erosion in upstream areas.
- 5) Improve water management organization, prepare water management plan, develop a database system to support decision making.

Increasing the productivity of the water system in the economical use of water, knowing the value and creating the added value from the use of water to meet the international level, manage water in urban areas, manage water for development, and increase the productivity of water use.

- 1) Consumption water management, urban/economic waterworks development, water saving in all sectors.
- 2) Building water stability in the production sector, developing new cost water sources, managing demand, supplying water for agricultural areas, rainwater, increasing production sector productivity,

Conservation and restoration of rivers, canals and natural water sources nationwide, prove and examine river and canals, resolve river boundary encroachment problems, establish landscape architectural and engineering design requirements. Water quality management and water resource conservation, restoration of rivers and canals.

### **Guidelines for Driving Water Resources Management**

Establishing sub-legislation related to the Water Resources Act and the establishment of a watershed committee. The National Water Resources Agency was the main agency for implementing and coordinating the movement of water resources management at the national level and river basin.

The 20-year Water Resource Management Master Plan, the National Water Resources Agency, developed and transmitted goals into watershed operations and action plans, including monitoring, evaluating the performance of the policies and master plans on with water management to be proposed to the National Water Resources committee, with a group of water users responsible for driving the implementation of the water basin committee.

Development of water resource database system and other related information, Office of the National Water Resources, Ministry of Digital Economy and Society and Ministry of Higher Education, Science, Research and Innovation coordinate with relevant departments to develop and link the water repository system and Telemetry system for monitoring water quality. The Ministry of Natural Resources and Environment was the principal agency for the operations of major rivers and calm waters.

In water resource management, the public sector of water resources alone had both the same rules and regulations that applied to people in all locales, but the context of one area may differ from that of another making it difficult to comply with regulations. This may prevent people from taking part in water resource management and use other natural resources that may affect water resources in the area. This will lead to water scarcity in the future, but only if a joint covenant can be established between the people and the state in a way that people agree to agree and recognize the damage they would have if they did not join the resource. This would make the people united by the rules that participated in the agreement. The approach was to create a covenant agreement, in particular, by participating in the joint design of local provisions related to the management of water resources due to an ecosystem-related water resource. In many areas of Thailand, there should be an agreement between the government sector, the public, and the private sector to organize water resources according to the context of each community differently under the Water Resources Act which was the main law.

## CONCLUSION

Driving Master Plan into Action At the national level, the National Water Resources Committee (NWRC) and The Office of the National Water Resources (ONWR) must be the main driving agencies, directing, and coordinating the implementation of the management master plan of water resources to go into action in all governments. At the regional and local levels, watershed committees must have an appropriate selection process, with all sectors involved in boarding so that problems can be resolved in the area with the relevant government agencies effectively, and was linked with the national and local water resource management master plan. The relevant government agencies must implement the Water Resources Management Master Plan in accordance with the Ministry, Department, Regional, Provincial, and Local programs. In the implementation of the Water Resource Management Master Plan, participation of citizens and stakeholders in the study area should be emphasized. There should be the preparation for external diversion in areas with suitable potential, both inland and non-irrigation zones, in order to reduce risks and increase production efficiency. A mechanism should be established to allow fair water allocation between activities or watershed levels to mitigate conflicts in the event of water shortages. The land use should be controlled in the upstream area or the area with steep slopes in order to balance the runoff during both the rainy and dry seasons. There should be a centralized database system by integrating the data obtained through the analysis process from the government agency, the owner of the data and data was continually updated to be able to be shared and used effectively, and to create accurate climate forecasts, including location, duration, and long-term forecasts. There should be a system to monitor situations in hazardous areas and to study the effects of climate change on water security and water management capacity at the local level to cope with the increased risks more from climate change in the future. Water quality management should be proactive by encouraging the reduction of wastewater and wastewater treatment at its source. Therefore, there should be the participation of the public sector between the public and the people in establishing covenants or collective agreements on the management of local water resources.

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