SAI Thailand: Performance Audit Case in the Development of Water Resources, the Augmentation of Irrigation Areas, Water Supply Management, and Water-Related Disaster Prevention

Topic/Subject Matter. Royal Irrigation Department is the main government department that has obligations to develop water supplies and increase irrigation zones in accordance with the capacity of water resources in an area. It also has to distribute water supplies efficiently to equally provide the resource and be capable of preventing flooding, mitigating damages from the natural disasters, and encouraging people to participate in these processes. The main goals of these missions are to increase water supplies and irrigation areas, allocate water resources to every part of the country with high quality and a reasonable price, improve the efficiency of water usage, reduce the economic costs of flooding and drought, and encourage local communities to involve irrigation administration.

State Audit Office of the Kingdom of Thailand realized the importance of the work of Royal Irrigation Department, so SAI Thailand has started examining the program's accomplishments and performance in order to provide instructions to the department to achieve the purpose of the program in both efficiency and effectiveness and perceive the cause of an obstacle in the program, its contribution to stakeholders, and a suggestion for the department to improve the work processes.

Audit Objectives. The scope of the audit covered program implementation from FY 2014 to FY 2020. In conducting the audit, SAI Thailand mainly concentrate on the following areas:

1. The efficiency and the effectiveness on the development of water resources and the augmentation of irrigation areas

2. The obstacle and the limitation in the program processes as well as finding the solution and the recommendation to Royal Irrigation Department.

Motivation. Sustainable Development Goals (SDGs) has been one of the most important agendas that Thai government has planned to achieve for maintaining a sustainable economic growth in the country. Likewise, SAI Thailand needs to improve an audit methodology to be more concentrated on a government's project in term of sustainable development.

This program, which primarily focuses on developing water resources, is perfectly linked to SDG Goal 6: Clean Water and Sanitation and if the program succeeds, it will lead to the success in other SDG goals including SDG Goal 2: Zero Hunger, SDG Goal 8: Decent Work and Economic Growth, and SDG Goal 13: Climate Action. As State Audit Office of the Kingdom of Thailand, therefore, the auditor chose to scrutinize this program in addition to assess and support Sustainable Development Goals that are the current main government long – term vision and will eventually contribute to the prosperity of the country.

How the auditor collected and organized the data. The auditor gathered and assessed the data by these following approaches:

1. Analyzing paper and documents relating to the program.

2. Interviewing administrators, representatives, and government officers who involve in the processes of the program in both headquarters and regional offices.

3. Observing reservoirs and buildings in the operating areas.

4. Applying Non – Probability Sampling and Purposing Sampling for designing a sample size and comprehensive sampling.

Overview of the meaningful results the analysis brought. From the audit, SAI Thailand found that the program could not create the stability in water supply providing to a production sector. To begin with, the water volume in some big-size and medium-size reservoirs were less than Lower Rule Curve (LRC), which meant that the amount of water in the reservoirs could not reach their minimum required level, and some had long been in this insufficient level for years. It negatively affects Royal Irrigation Department in being unable to provide the supplies when there is no rain at the expected time. The most important factor that causes this problem is the decrease in reservoir inflow and the traditional farming method farmers use in planting rice. To demonstrate, many farmers in Thailand still plant off-season rice, which requires a large amount of water in farming, because this type of planting can be grown more than once a year.

Beside the low water volume in reservoirs, the development of water resources and the augmentation of irrigation areas could not meet the targets. According to the audit from FY

2014 to FY 2019, Royal Irrigation Department could reach 75.48 and 90.49 percent of the total imposed targets in the development of water resources and the augmentation of irrigation areas respectively. These can cause the scarcity of water supplies in areas that do not have an improvement in irrigation and makes the unequal distribution of water resources among farmers. The main reason is the delay in the authorization of the forest exploitation because many targeted irrigation areas are located in reserved forest areas and, consequently, a land officer needs to take much time in deliberately considering the approval of the lands. Another reason is that Royal Irrigation Department also needed to change construction details in some areas to suit landscapes and local communities because they had significantly changed comparing to when the officer planned the program.

The increase of irrigation system in agricultural lands also did not meet the goals that had been set by Royal Irrigation Department. From FY 2017 to FY 2019, the land readjustment could successfully achieve the department's target only in FY 2017 while in FY 2018, it could improve farmers' areas by merely 21.24 percent of the target and, likewise, not be able to complete its target in FY 2019. In the same way, the agricultural area improvement in water supply management system like creating canals to transport water resources or agricultural products did not reach the aim set by Royal Irrigation Department. The department could improve farmland by 99.83, 71.72, and 55.03 percent of the target in FY 2017, FY 2018, and FY 2019 respectively. These result in inefficient water usage and opportunity costs to farmers who should have received benefits from saving the production costs. The crucial factors are from the lack of participation from farmers because they do not understand the advantages of having an irrigation area in their land, which slightly costs them in term of money and partially losing their property rights. Another factor is the insufficient budget the department receive for the land readjustment plan. For instance, in FY 2018, Bureau of Central Land Consolidation got merely 9.74 percent of the budget they required.

Apart from the instability in water supply distribution mentioned in the former paragraphs, the auditor found that the prevention and the mitigation of water-related disasters conducted by Royal Irrigation Department were not effective as it should be. Despite the installation of Smart Water Operation Center (SWOC) to create a real-time water monitoring and the improvement in dams, temporary flood storage areas, and drainage systems, after

scrutinizing the data of damaged areas caused by droughts and floodings from 2014 to 2019, the auditor found that the annual number of the damaged areas was surprisingly an upward trend, which increased from 11,754 acres to 127,655 acres in 5 years. This result reflects the ineffectiveness of the program. The major reason is that the department could not completely achieve the targets in the prevention and the mitigation of water-related disasters. To explain, from FY 2014 to FY 2019, Royal Irrigation Department had planned 651 programs to handle the natural disasters, but the department could complete 564 programs, which made 112,631 acres of the planned areas undeveloped. This was mainly caused by the problems in the construction process, for example, the delay in the authorization of land exploitation and the change in construction details.

Recommendation. To increase water volume in reservoirs that will strengthen the water supply security, deal with water-related disasters, and eventually help Royal Irrigation Department control water quality and conserve water resources, State Audit Office of the Kingdom of Thailand has suggested Royal Irrigation Department improve the program's process through the following:

1. By coordinating other government departments to gather related data for creating Big Data to have precise agricultural information and proper water management.

2. By providing a solution to control the number of agricultural lands and a policy that can compensate farmers for their loss of earning as a result.

3. By following up and coordinating a government unit in local areas to recognize an obstacle in the approval of land exploitation and find a solution to solve the delay.

4. By mandating and instructing a government officer to properly prepare targeted areas before requesting a budget approval.

5. By emphasizing a public relation to help farmers understand and realize the advantages of building an irrigation system in their farmland.

6. By appropriately increasing the budget to build irrigation system in order to achieve the targets in the land readjustment plan set by Bureau of Central Land Consolidation.