

Country Name	Project for Improvement of Sewage Treatment Plants Management in Thailand
Thailand	

I. Project Outline

Project Cost	295 million yen	
Project Period	May 2004 – November 2007	
Implementing Agency	Wastewater Management Authority (WMA)	
Cooperation Agency in Japan	Ministry of Land, Infrastructure, Transport and Tourism, Japan Sewage Works Agency	
Related Projects (if any)	[Japan's cooperation] • Training Center For Sewage Works (TCSW) (Technical Cooperation, 1995-2000) [Other donors' cooperation] • Preparatory Operational Assistance to the Wastewater Management Authority (DANIDA, 2000-2001) • Capacity Development for Wastewater Management Authority (DANIDA, 2003-2006)	
Background	Thailand was facing various environmental problems as a result of rapid economic development and urbanization. Wastewater treatment was one of such issues. The Public Works Department, the Ministry of Interior and the Ministry of Science, Technology and Environment (MOSTE) developed wastewater treatment facilities since the 1990's. To respond to the shortage of technical personnel to properly operate and manage rapidly-increasing sewerage facilities, a JICA technical cooperation project trained approximately 1,000 technical personnel nationwide (1995-2000). However, many Sewage Treatment Plants (STPs) did not operate properly yet due to insufficient operation and maintenance (O&M) systems at individual STPs. Meanwhile, WMA was established in 1995 as a state enterprise affiliated to MOSTE to improve the efficiency of STPs by carrying out O&M commissioned by local governments. Under such circumstances, this project was implemented to establish proper O&M methods through WMA and thereby improve efficiency of STPs.	
Inputs	Japanese Side	Thailand Side
	1. Experts: 6 for Long term, 7 for Short term 2. Trainees Received: 5 persons 3. Equipment: 16 million yen 4. Local cost: basic operational budget, local consultant expenses	1. Staff allocated: 27 persons 2. Local cost: 684,390 baht for training (from WMA), utilities and administration (from TICA) 3. Project office
Project Objectives	Overall Goal Sewage Treatment Plants (STPs) are operated efficiently and effectively in Thailand.	
	Project Objective Efficient and effective operation method of STPs is established.	
	Outputs • Output 1: Function of focused STPs is recovered. • Output 2: Reference materials for improvement of sewage treatment plant management are developed. • Output 3: Skilled personnel are assigned to operate and maintain the focused STPs appropriately. • Output 4: Information system is established to disseminate reference materials and to collect operation and maintenance (O&M) data. *Focused STPs: Pilot STPs (Pathumthani and Kamphaeng Phet) that were selected among total 12 STPs operated by WMA for the purpose of establishing O&M methods.	

II. Result of the Evaluation

Summary of the Evaluation
<p>In Thailand, while Bangkok and other large cities that were in relatively good financial condition commissioned the O&M of STPs to the private sector and maintained the plants quite well, many STPs in other local governments had problems with O&M due to lack of budget and human resources. Therefore, it was of urgent importance to improve the efficiency of existing STPs.</p> <p>This project has partially achieved the project purpose of establishing an efficient and effective operation method for STPs, however not yet really met the overall goal that STPs in Thailand be operated efficiently and effectively, because many of them are still in inadequate O&M status. As for sustainability, some problems have been observed in terms of institutional and financial aspects due to WMA's difficulty of making a new fee-applied contract with municipalities which seem to be reluctant to collect wastewater treatment fee.</p> <p>For relevance, the project has been highly consistent with Thailand's development policy and development needs, as well as Japan's ODA policy. For efficiency, the project cost slightly exceeded the plan.</p> <p>In the light of above, this project is evaluated to be partially satisfactory.</p>

1 Relevance

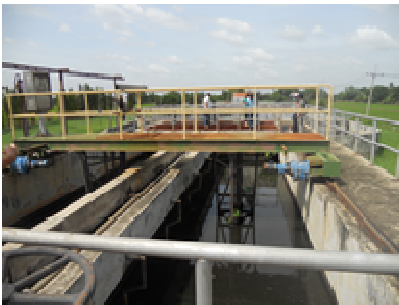
At the time of both ex-ante evaluation and project completion, this project has been highly relevant with (1) Thailand's development policy placing great importance on water quality improvement and wastewater treatment as set out in the 9th and 10th National Economic and Social Development Plans (NESDP 2002-2006 and 2007-2011) and related sector development plans, (2) development need for O&M of STPs, as well as (3) Japan's ODA policy (MOFA's Country Assistance Program for Thailand (2000) and JICA's Country Program for Thailand); improvement of environmental quality is one of the main schemes for Japan's ODA. JICA also puts strong emphasis on environmental management to assist in developing measures against water pollution caused by insufficient sewage control. Therefore, relevance of this project is high.

2 Effectiveness/Impact

This project has partially achieved the project purpose of establishing an efficient and effective operation method of STPs as shown in the completion of the reference documents (reference materials) and improvement of operation of STPs under WMA. Through the pilot activities (operation of focused STPs), WMA established operation methods for the oxidation ditch (OD) system and the stabilization pond (SP) systems, respectively, and disseminated them to related government agencies, municipalities and STPs through WMA's direct operation of STPs, and the training and distribution of reference materials that described the methods established. Consequently, WMA strengthened its capacity of operation of STPs, which is shown in the fact that the quality of effluent water of all STPs under WMA met the standard even after the major flood in 2011. However, the scale of the effect to STPs is smaller than expected as the number of STPs whose operation was commissioned to WMA decreased from 12 (at the time of the ex-ante evaluation) to 5 (at the time of the ex-post evaluation), due to the change of the type of contract between WMA and municipalities¹. Also, the reference materials distributed to STPs could be lost or not actively utilized due to the inappropriate transfer following the personnel changes at STPs.

The overall goal was partially achieved. WMA has continued training on O&M of STPs². And out of 68 operational STPs under municipalities, the quality of effluent water of only 3 STPs did not meet standard as of September 2010³. However, due to the limitation of WMA's influence on all STPs nationwide, not all STPs have been operated efficiently and effectively yet: in 2010, besides the above-mentioned 68 operational STPs, there were 18 STPs that were directly under municipalities but suspended due to operation problems. Also, after the 2011 flood, the number of STPs where effluent did not meet the standard increased to 28.

Therefore, effectiveness of this project is fair.



Aerated Grit Chamber at STP



Aeration Tank at STP



Clarifier Tank at STP

3 Efficiency

While inputs were appropriate for producing the outputs of the project, and the project period was as planned (ratio against the plan: 100%), project cost slightly exceeded the plan (ratio against the plan: 122%) because of an increased number of experts. Therefore, efficiency of this project is fair.

4 Sustainability

¹ The number of WMA-commissioned STPs increased to 22 by 2010, but most of the contracts had to be halted when the new type of fee-applied contracts (for 15 years) was introduced to encourage municipalities to collect wastewater treatment fees from residents and transfer the O&M method to municipalities. In this new type of fee-applied contract, municipalities receive not only WMA's technical and budgetary support for O&M but also assistance on capacity building of management based on the municipalities' initiative in collecting wastewater treatment fees. However, it was difficult for WMA to conclude the new fee-applied contracts because there was no measure to enforce the payment of wastewater treatment fees on residents and many municipalities were reluctant to collect fee.

² For example, WMA held two training sessions in Chiang Mai and Song Khla in 2011. About 70 people attended each training session.

³ Comparable data about before the project is not available, but the ex-ante evaluation report says that the effluent quality was insufficient with a considerable number of STPs. The data of year 2011 is not shown. Due to the massive flooding crisis in year 2011 which was the unusual event, the data is highly different from previous years.

The project has some problems regarding the institutional and financial aspects of WMA. As to the institutional aspect, although the structure of the implementing agency has been sustained in a similar manner within the implementation period (even with the restructuring of MOSTE to the Ministry of Natural Resources and Environment (MONRE)), WMA faces difficulties in maintaining or increasing the number of STPs they operate, i.e., in making a new fee-applied O&M contract with municipalities since many of them seem still to be reluctant to collect wastewater treatment fees, which is a prerequisite for entering into a contract (see footnote 1). Also, the information system for reporting operational status of each STP to the WMA headquarters that the project developed is currently malfunctioning. As to the financial aspect, while WMA receives the budget from the Thai government necessary to implement its O&M work and trainings, the amount of the budget has decreased since WMA closed less contracts under the new fee-applied O&M contract. Less revenue and less contracts with municipalities affects the continuation of activities.

However, no problem has been observed in policy background (the current NESDP follows the same direction as the previous NESDP) and technical aspect (improved capabilities of staff) of WMA. Therefore, sustainability of this project effect is fair.

III. Recommendations

Recommendations for Implementing Agency

- WMA, as an implementing agency, should pay much more attention, and consider how to utilize and maintain the materials, equipment and knowledge which it obtained from the project for maximum usefulness of operation and management of its organization and STPs. Therefore, WMA is recommended to take the following action :
 - Keep monitoring the quality standard of water, as the data provides WMA with important information on the O&M situation at STPs.
 - Update the reference materials to come up with the current situation of STPs, and utilize the materials for the sake of the efficiency and effectiveness of O&M at STPs.
- MONRE is recommended to consider ways to promote the sewage treatment fee collection for financial sustainability.