

JBIC Ex-post Monitoring Report

Project Name: Thailand “Map Ta Phut - Sattahip Water Pipeline Project”

[Outline of Loan Agreement]	
Loan Amount/Loan Disbursed Amount	: 1,459 million yen/1,052 million yen
Signing of Loan Agreement	: November 1988
Final Disbursement Date	: March 1994
Ex-post Evaluation	: 1998
Executing Agency	: Royal Irrigation Department (RID), Ministry of Agriculture and Cooperatives

[Project Objective] (Field Survey : January, 2005)

This project was to construct water supply pipelines in the southern coastal region of the Eastern Seaboard located east of Bangkok in order to accommodate the demand for safe water, which is increasing with the population growth in the target region, and thereby contribute to the improvement of the living standards of the residents.

[Outline of Results]

Item	Ex-post Evaluation	Ex-post Monitoring																																																								
[Effectiveness and Impact] (1) Addressing the demand for water supply in the target region	(1) The water supply volume in 1998 was 2.2 million m ³ /year, which is only 15.7% of the design supply capacity (14.0 million m ³ /year). This low capacity utilization rate is due to the delay in the construction of water purification and distribution facilities by Provincial Waterworks Authority (PWA) (out of the scope of ODA Loan).	<p>(1) After the ex-post evaluation, with the gradual completion of water purification and distribution facilities by PWA, the water conveyance volume has steadily increased from 1998 to 2004 (3.3-fold increase) to reach 52% of the design supply capacity. An increase in the capacity of the water purification plant is planned from the current 6,850 m³/day to 12,054 m³/day in Banchang and from 12,000m³/day to 31,200 m³/day in Sattahip by the end of 2005. As construction of these facilities is accelerated, a further increase in water conveyance volume is expected. It is predicted that the initially planned water conveyance volume (14.0 million m³/year) will be achieved in several years, however, it will depend on the extent of increase of the water demand in Pattaya where the water from the new water treatment system in Sattahip which is under construction will be provided.</p> <p>(2) The number of households provided with a water supply in Ban Chang and Sattahip Districts has increased by 12% and 47% respectively on an annual average since 1998.</p> <p>Volume of Water Conveyed through the Map Ta Phut - Sattahip Water Pipeline (million tons / year)</p> <table><tr><th>Evaluation Indicator</th><th>1998</th><th>1999</th><th>2000</th><th>2001</th><th>2002</th><th>2003</th><th>2004</th></tr><tr><td>Annual water conveyed to the two districts via water pipes</td><td>2.2</td><td>2.5</td><td>2.8</td><td>3.5</td><td>4.6</td><td>5.7</td><td>7.3</td></tr><tr><td>Domestic use</td><td>1.9</td><td>1.8</td><td>2.3</td><td>3.1</td><td>3.9</td><td>5.1</td><td>6.7</td></tr><tr><td>Industrial use</td><td>0.2</td><td>0.7</td><td>0.5</td><td>0.4</td><td>0.7</td><td>0.6</td><td>0.6</td></tr></table> <p>Water Supply Rate (%)</p> <table><tr><th>District</th><th>1998</th><th>1999</th><th>2000</th><th>2001</th><th>2002</th><th>2003</th><th>2004</th></tr><tr><td>Ban Chang</td><td>-</td><td>68</td><td>70</td><td>73</td><td>75</td><td>80</td><td>90</td></tr><tr><td>Sattahip</td><td>-</td><td>-</td><td>-</td><td>6.1</td><td>8.5</td><td>12.4</td><td>17.8</td></tr></table> <p>In Banchang, the Water Supply Rate has been steadily increasing. The Water Supply Rate in Sattahip has been on the increase however, remains at low level. The continuous marketing effort by the Universal Utilities that handles water provision in Sattahip district is needed to improve the Water Supply Rate in the service area. (Sattahip district has the Navy facilities which use the other water distribution system. The beneficiaries of the system are not counted in the Water Supply Rate in Sattahip.)</p> <p>Non-revenue water rate: less than 5% (Only for the water pipeline part. Water distribution part is not included.)</p>	Evaluation Indicator	1998	1999	2000	2001	2002	2003	2004	Annual water conveyed to the two districts via water pipes	2.2	2.5	2.8	3.5	4.6	5.7	7.3	Domestic use	1.9	1.8	2.3	3.1	3.9	5.1	6.7	Industrial use	0.2	0.7	0.5	0.4	0.7	0.6	0.6	District	1998	1999	2000	2001	2002	2003	2004	Ban Chang	-	68	70	73	75	80	90	Sattahip	-	-	-	6.1	8.5	12.4	17.8
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(2) Contributing to the improvement of the living standards of the residents of Ban Chang and Sattahip District by supplying domestic water, and also contributing to industrial development of the Eastern Seaboard.	(2) Five water supply projects including this project have achieved the intended objective of addressing the water demand, which is increasing with the industrialization and urbanization of the Eastern Seaboard.	(2) <ul style="list-style-type: none">According to the results of the interviews to Provincial Water District in Banchang and Universal Utilities – Sattahip Branch, major change of the living standard of people as an impact of this project was not seen in Banchang because this district had been able to use the other water source since before the project started. In Sattahip, there had been households which had had to depend on water venders who visited the area once a week and sold the water at high price. Now that it was dissolved, the labor for getting water by children and women and expenditure for water decreased.According to the result of interview with Maptaphut Industrial Estate, the water distributed to the Eastern Sea Board through the pipelines which were assisted by the series of JBIC projects is used in an effective manner. As the water demand by the industries increases, other water sources must be prepared.																																																								

<p>[Sustainability]</p> <p>(1) Technical Capacity/O&M System/Financial Status</p>	<p>(1) Operation and maintenance activities are performed by East Water, which was granted a 30-year right to manage the water supply business by the government in 1992. Since the start of the operation, the company has been making efforts to improve efficiency through automation. It has a sufficient number of employees (65) and a structured training system.</p>	<p>(1)</p> <p>Technical Capacity: East Water had 91 employees in total as of 2004 including a sufficient number of technical operators. Also, it has introduced Satellite Supervisory Control and Data Acquisition (SCADA) to monitor the pump station as part of efforts to enhance its technical capacity.</p> <p>O&M System: The company is mainly engaged in the water distribution business (water wholesale) on the Eastern Seaboard and also sells drinking water and manufactures conduit pipes. It maintains a good relationship with the government and has no problem in obtaining licenses and permits and securing raw water. The company is listed on the stock exchange and received a “Disclosure Award” from the stock exchange (2003).</p> <p>Financial Status: The financial status is sound with a capital ratio of 54.0% as of 2004. The ordinary profit increased steadily to reach 445.6 million baths in 2004 (from 178.9 million baths in 1998). Further increase in income is expected with the increase in water supply volume.</p>
<p>(2) O&M Status</p>	<p>(2) No problem</p>	<p>(2)No problem</p>
<p>[Lessons Learned, recommendations, Data Information and Monitoring Method]</p> <p>(1) Follow-up of the lessons learned and recommendations made in the ex-post evaluation and SAPS conducted after the ex-post evaluation</p> <p>(2) Lessons learned in the ex-post monitoring and recommendations for maintaining sustainability</p>	<p>(1) None. (As the ex-post evaluation was conducted as program evaluation, no particular project base lessons learned or recommendation is made.)</p>	<p>(2) Future increase of water volume of this pipeline depends on the extent of water consumption in Pattaya where the water from the new water purification plant which is now under construction is provided. Thus, it is suggested that RID and East Water should pay attention to the future water demand of Pattaya.</p>