

Country Name	Project on Technical Strengthening of National Institute of Metrology Phase II
Thailand	

I. Project Outline

Project Cost	297 million yen	
Project Period	October, 2004 - October, 2007 (extension period: October, 2007 – October, 2008)	
Implementing Agency	National Institute of Metrology (NIMT)	
Cooperation Agency in Japan	<ul style="list-style-type: none"> • Measurement and Intellectual Infrastructure Division, Industrial Science Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry • National Metrology Institute of Japan (NMIJ) • Japan Quality Assurance Organization (JQA) • Japan Electric Meters Inspection Corporation (JEMIC) • National Institute of Technology and Evaluation (NITE) • Chemicals Evaluation and Research Institute, Japan (CERI) 	
Related Projects (if any)	Japan's cooperation <ul style="list-style-type: none"> • National Metrology System Development Project (I) (II) (ODA Loan, 1999-2008) • The Project on Technical Strengthening of National Institute of Metrology Phase 1 (Technical Cooperation, 2002 –2004) • The Third Country Training Program on Strengthening of Measurement Standards Institutes of Asia Pacific Countries (Third Country Training, 2008-2013) 	
Background	<p>To improve quality of export goods and thus competitiveness of industry in Thailand, the National Metrology System Development Act was enacted in 1997, and the Thai government established NIMT in June 1998 to commence the development of the National Measurement Standards¹. To support such efforts, Japan provided ODA Loans from 1999 for the construction of the new NIMT building and the procurement of the necessary equipment. Also, this Technical Cooperation project to strengthen the capability of NIMT was planned to maintain and supply National Measurement Standards using equipment produced by the ODA Loans.</p> <p>Originally, this project was planned for five years at the time of formulation. However, due to the delay in the construction of the new building and the procurement of machinery and equipment with the Japanese ODA loan, the project was divided into two phases. The Phase 1, technical transfer on the measurement standards that could be handled at the old building, started in 2002 and finished technical transfer in 13 quantities. Together with the phase 2 of the Project, which was commenced in October 2004, the project aimed to provide technical transfer in 40 quantities (increased to 42 quantities after the commencement of the project) of measurement standard during the 5 years with the equipment purchased by Japanese ODA loan.</p>	
Inputs	Japanese Side	Thailand Side
	<ol style="list-style-type: none"> 1. Experts: 5 for Long term, 45 for Short term 2. Trainees Received: 16 persons 3. Equipment: 2 million yen 4. Local Cost: 7 million baht 	<ol style="list-style-type: none"> 1. Staff allocated: 37 persons 2. Local Cost: 15 million yen 3. Building, facilities and space for the project (new building of NIMT with the Japanese ODA loan)
Project Objectives	Overall goal To strengthen the national measurement system in Thailand.	
	Project Objective(s) NIMT establishes and manages National Measurement Standards with internationally recognized level of accuracy.	
	Output(s) <ul style="list-style-type: none"> • The operation and administration of the project are enhanced • The equipment is operated and maintained properly • The technical capability of NIMT is upgraded • Accuracy of national measurement standards is improved • NIMT disseminates national measurement standard properly 	

II. Result of the Evaluation

Summary of the Evaluation
<p>The Japan's cooperation for establishing the National Measurement Standards in Thailand began with the ODA Loan for construction of new building and procurement of equipment of the National Institute of Metrology (NIMT) in 1999. Then, technical transfer to strengthen the NIMT's measurement capacity using equipment produced by the ODA Loans became necessary.</p> <p>This project has largely achieved the increase of the internationally-approved calibration and measurement capabilities</p>

¹ Measurement standards: standards for units to measure quantities such as length, weight, time, electric current, and so on.

that NIMT as the Thailand's primary calibration institution can provide and the actual increase of calibration services/certificates, for the project purpose of NIMT's establishing and managing National Measurement Standards and the overall goal of strengthening the national measurement system in Thailand. As for sustainability, problem has been observed in term of financial aspect due to the insufficient budget allocation from the government to cover expanding NIMT's works.

For relevance, the project has been highly relevant with Thailand's development policy, development needs as well as Japan's ODA policy at the time of both ex-ante and ex-post evaluation. For efficiency, the project period exceeded the plan.

In the light of above, this project is evaluated to be satisfactory.

1 Relevance

This project was highly relevant with Thailand's development policy (the importance of metrology as set in the 9th and 10th National Economic and Social Development Plans 2002-2006 and 2007-2011), development needs (strengthening of NIMT as Thailand's primary calibration institution for more competitiveness of Thai products), as well as Japan's ODA policy Japan's Country Assistance Program for Thailand (2000) at the time of both ex-ante and ex-post evaluation. Therefore, its relevance is high.

2 Effectiveness/Impact

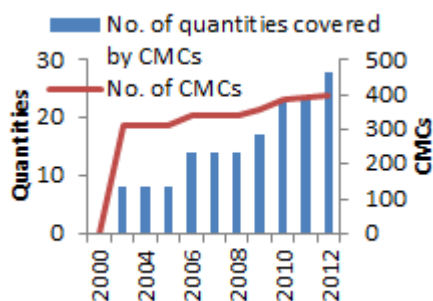
This project has largely achieved the project purpose of NIMT's establishing and managing National Measurement Standards as well as the overall goal of strengthening the national measurement system in Thailand.

For the project purpose, the project completed the technical transfer to NIMT staff on all of the planned measurement standards in a total of 42 quantities² in 8 fields (length, mass, time & frequency, electricity & magnetism, photometry, thermometry, chemical and acoustics & vibration), out of which 20 quantities were accredited for ISO/IEC17025³ by the time of the project completion⁴. Accordingly, the number of calibration services/ certificates provided/ issued by NIMT as the Thailand's primary calibration institution increased.

For the overall goal, the increasing number of measurement capabilities (i.e. the number of ranges of calibration services that NIMT can provide to measure certain quantities) have been approved as the internationally-compatible Calibration and Measurement Capabilities (CMCs) and registered in "Appendix C of CIPM-MRA⁵," which is the international database of CMCs. By the time of the project completion (2008), the number of CMCs increased to 343 to cover 14 quantities. After the project completion it increased to more than 400 to cover 28 quantities. Also, the national measurement network has been developed with NIMT on its top, 83 calibration laboratories at secondary or lower levels.

Furthermore NIMT is expected to promote NIMT-traceable measurement standard and to become a hub-organization in metrology in the ASEAN countries. Now, NIMT is initiating the international training or seminar program or take international customer.

Such achievement was the combined effects of the ODA Loan projects that developed the facilities and equipment of NIMT and this technical cooperation project: the improvement of the capabilities would not have been possible without either of the facilities/equipment (hardware) and techniques (software). Therefore effectiveness/impact of this project is high.



(Source: CIPM-BIPM)

Number of NIMT's Calibration and Measurement Capabilities (CMCs) listed in Appendix C of CIPM-MRA



NIMT Building



Gas Weighing Room of NIMT

3 Efficiency

While the inputs were appropriate for producing the outputs of the project and the project cost was within the plan (ratio against plan: 90%), the project period was longer than the plan (ratio against plan: 132%) because of the delays of building construction and procurement of equipment (outputs in the ODA Loan projects). Therefore, efficiency of this project is fair.

4 Sustainability

The facilities/equipment provided by the ODA Loan projects and this project are maintained by NIMT, the implementing

² Technical transfer in 13 quantities had been conducted under Phase 1 project.

³ ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories. In case of this project, accreditation was given by International Accreditation Japan (IA Japan) of National Institute of Technology and Evaluation (NITE), the Japan's national accreditation institution. In general, laboratory accreditation aims to assure the confidence and reliability of the data measured, tested, and calibrated by laboratories. In many countries, purchasers (users) require suppliers (manufacturers) to attach the test data to products and a lot of suppliers use the data tested by the third-party laboratories independent from relevant parties. In these cases, test reports issued by accredited testing laboratories are value-adding and useful for purchasers and suppliers to effective trade (source: NITE).

⁴ As of 2012 the accreditation is given in more than 28 quantities.

⁵ CIPM-MRA: global mutual recognition arrangement (MRA) of metrological standards with International Committee for Weights and Measures (CIPM) (Secretariat is at the International Bureau of Weights and Measures (BIPM) of CIPM). Calibration and measurement capability that was approved according to procedure required by the CIPM-MRA is listed in the Appendix C of the MRA and then called a CMC. Laboratory accreditation (mentioned above) is one of the prerequisites for approval of CMC.

agency. The project has some problem in financial aspects because the budget, though stably allocated by the government every year, is not enough to cover the expanding works of NIMT⁶, and thus NIMT has to request for additional budget year by year. Although such additional requests have been approved so far, the increasing dependence on ad hoc budget which is not as guaranteed as the ordinary budget may affect the future financial management of NIMT.

However, no problem has been observed in policy background, structural and technical aspects of the implementing agency. NIMT well receives the policy support in an ongoing manner, and the organizational structure maintains what it was considered desirable at the time of ex-ante evaluation with sufficient number of qualified staff, among whom the number of doctorate degree holders is increasing. The facilities and equipment are operated and maintained well.

Therefore, sustainability of the project effect is fair.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency

International dissemination: NIMT has a good practice from international cooperation with JICA in the past, and it is expected that by utilizing this result of the projects, NIMT could promote its traceable measurement standard and become the hub-organization in the ASEAN region. NIMT is expected to continue international training course or seminar periodically without support from JICA, and also to increase the visibility of NIMT as a knowledge hub in metrology field in this region by utilizing the Project result, strengthen and improve metrology and industrial product standards that tie metrology institutes in the region.

Lessons learned for JICA

Seamless assistance with a combination of Yen Loan and Technical Cooperation is effective to facilitate full utilization of provided equipment by Yen Loan and respond to development needs. This Project was a good example of the combination of plural assistance schemes: Technical Cooperation was implemented with good timing when the Yen Loan project was completed, and the Technical Cooperation brought an impact on counterpart agency's capacity building and also an expansion of the result to this region.

⁶ Income from calibration services is increasing, but the large portion of budget still comes from the government.