

## Simplified Ex-Post Evaluation for Grant Aid Project

Evaluator, Affiliation	Masaaki Shiraishi Waseda Research Institute Corporation (WRI)	Duration of Evaluation Study
Project Name	The Project for Establishment of Disastrous Weather Monitoring System in Vientiane in Lao People's Democratic Republic	January 2010 – December 2010

### I Project Outline

Country Name	Lao People's Democratic Republic	
Project Period	August 2004-December 2005	
Executing agency	Department of Meteorological and Hydrology (DMH), Ministry of Agriculture and Forestry Department of Civil Aviation, Air Navigation Division (DCA), Ministry of Communication, Transport, Post and Construction	
Project Cost	Grant Limit: 736.0 million yen	Actual Grant Amount: 735.6 million yen
Main Contractors	Marubeni Corporation	
Main Consultants	Japan Weather Association	
Basic Design	June 2004	
Related Projects (if any)	JICA, "the Project for Meteorological and Hydrological Services Improvement" (2006-2011) (Technical Cooperation Project) JICA, "the Project for Air Traffic Safety Improvement Project" (2006-2009) (Technical Cooperation Project)	
Project Background	Lao People's Democratic Republic can be often threatened by severe rain and strong wind in the country. The mountainous areas in the northern and central part of the country receive more than 3,000 mm of annual rainfall. As well, highly humid wind blows from the Indian Ocean into the country and a tropical depression or typhoon approaching from the South China Sea strengthens the influx of the wet air. People in Laos suffered from heavy floods along the Mekong River and its branch rivers, lightning accidents, strong wind disaster, and even aircraft accidents. DMH, responsible for monitoring and forecasting weather conditions, disaster management are insufficient, needed to upgrade related systems and equipment.. Therefore, the government of Laos requested Japan to provide and rehabilitate various facilities for facilitating disaster control.	
Project Objective	To improve weather monitoring and forecasting system, making it possible to provide more timely information, among the improvements, by use of technologically advanced facilities and equipment, in order to better cope with and mitigate meteorological disaster.	
Output[s] (Japanese Side)	Major Equipment List - Meteorological Radar System - Meteorological Radar Data Display System - Meteorological Data Communication System - Meteorological Satellite Data Receiving System - Meteorological Satellite Data Receiving System (for Vientiane International Airport)	Major Construction (Building and Installation) - Radome Room 30.17 m <sup>2</sup> - Radar Equipment Room 32.04 m <sup>2</sup> - Weather Observation & Forecasting Room 75.27 m <sup>2</sup> - Maintenance Room 24.70m <sup>2</sup> - Data Room 10.09 m <sup>2</sup> - Toilets 12.61 m <sup>2</sup> - Engine Generator Room 19.61 m <sup>2</sup> - Electricity Room (incl. 2 EPSs) 9.25 m <sup>2</sup> - Radar Power Backup Room 8.16 m <sup>2</sup> - Storage 2.40 m <sup>2</sup>

### II Result of the Evaluation

Summary of the evaluation
<p>This project is basically in line with the essential policies and development needs of Laos, and Japan's ODA policy as well, therefore, validity of the project is high enough. And the project has been implemented almost as planned, thus efficiency is also high. Effectiveness in terms of the outcome of the project has developed as expected, particularly the information service for "Agricultural Disasters Information" and "Crop Harvest Forecast" which have been highly appreciated. While in terms of sustainability, DMH staff members feel worried about lack of basic knowledge of science, difficulties in operation, maintenance and application of the advanced equipment are expected. Although it may not seriously affect daily operation and maintenance work at present, improvement in regard to capacity is required, The project are highly appreciated by DMH particularly for the contribution in agro-meteorological areas, but no outcome development in aviation area can be confirmed at this time because of not receiving any information from DCA.</p> <p>In light of the above, this project is evaluated to be satisfactory.</p> <p>&lt;Constraints of this evaluation study&gt;            Although a Questionnaire Sheet has been sent to DMH and DCA, a reply has been given only by DMH, therefore, this evaluation have been made based on the information given from DMH.</p>
1 Relevance

(1) Relevance with the Development Plan of the Lao PDR

At the time of planning the project, the subject of the development of collection and dissemination of meteorological and hydrological observation data had been mentioned in the Fifth Five-year Development Strategy Plan (2001~2005), and in the development plan of Ministry of Agriculture and Forestry, "DMH Development Plan 2001~2010." At the time of the ex-post evaluation, though no directly related policy is seen in the Sixth Five-year Development Strategy Plan (2006~2010), under the policy of continuous investment for social and economic infrastructures, improvement in the navigational field is emphasized as an important area. Following the DMH Development Plan as above, the "DMH Strengthening Plan 2005~2008" has been formulated with assistance by WMO (World Meteorological Organization). Further, in July 2007, DMH was transferred from being an agency of the Ministry of Agriculture and Forestry to being an organ under the Prime Minister's Office with new name of WREA (Water Resources and Environment Administration). The WREA has become the principal organ to implement the National Integrated Water Resources Management Programme network, and is increasingly important in that role. As stated above, water resources management and development and disaster prevention are essential policy themes in the country, and therefore, this project is very much relevant to the state's policy.

(2) Relevance with the Development Needs of the Lao PDR

Prevention and mitigation of the meteorological disasters in the central and southern part of the country had been long term development needs for Laos. In recent years, due to an increase of aircraft accidents in keeping with an increase in air traffic, timely information service on meteorological disturbances have become a new need for traffic security. Further, irrigation and water resource management are essential services that may directly affect agricultural production activities in the prime industry of the country. Therefore, accurate provision of meteorological and hydrological forecast and alarm by the project meets the development needs of the country.

(3) Relevance with Japan's ODA Policy

In Japan's ODA White Paper 2004, assistance for the prevention and mitigation of damage by natural disasters such as flood, drought, typhoon, etc. is emphasized as a part of social and economic infrastructure development programs. In particular, Mekong Basin is one of the important strategic areas. Further, this project meets two basic infrastructure needs, agriculture and forestry (water resources management) and infrastructure development (flood control), out of the four strategic priority ODA areas emphasized in the Country-wise Data Book of Japan (2005).

This project has been highly relevant with Laos's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

2 Efficiency

(1) Project Outputs

Consistency of items and quantities of equipment and services between plans (the Major Equipment List in the Basic Design) and actually purchased equipment items are difficult to verify, because different classification methods and serial numbers have been used. However, no deficiencies in actually delivered equipment and installation performance have been reported, and all equipment and services have been received, as per the reply by DMH, and therefore, it is judged that all supplies and services for the project have been properly provided. One projector supplied under the project was stolen just after the completion of the project, but it has been repurchase by the executing agency's own funds.

(2) Project Period (Project Inputs)

The project implementation period of 18.2 months has been shorter than planned 19 months. (95.8%)

(3) Project Cost (Project Inputs)

The actual project cost of 735.6 million Japanese yen was lower than the planned budget of 736 million Japanese yen. (99.95%)

Both project period and project cost were mostly within the plan, therefore the efficiency of the project is high.

3 Effectiveness / Impact

(1) Quantitative Effects

As per attached Table-1 received from DMH, except slight under-achievement in observation distance of atmospheric disturbance of 240km against 250km as planned, other quantitative targets have been attained. Therefore, the facilities supplied under the project are justified as being managed as technically instructed by Japanese experts in the time of project implementation.

(2) Impacts (Impacts on the Natural Environment, Land Acquisition and Resettlement, Unintended Positive/Negative Impact)

Outcomes including compilation of a database of meteorological observation data by DMH counterparts, utilization of analyzed data for planning of prevention of disasters, information exchange with the MRC (Mekong River Commission) and strengthening of collaboration with regional organizations, enhancement of rainfall monitoring capacity in Mekong River Basin have been effectively developed. Among others, very highly-regarded outcomes of the project are agricultural disaster information and crop harvest prediction. Further, reportedly, increased expenditure for electric power consumption incurred by continuous operation of the facilities is a negative impact on the management of implementation agency. As above, it is justified that the required function and role of the meteorological and weather station have been fulfilled satisfactorily. In regards to the burden of power charge, it is firstly necessary to evaluated incremental costs versus benefits due to this project, before an energy saving study. Moreover, because of lack of a reply from DCA, outcome and impact by the project concerning aviation weather observation have not been evaluated.

This project has somewhat achieved its objectives, therefore its effectiveness is fair.

## 4 Sustainability

### (1) Structural Aspects of Operation and Maintenance

At the time of project planning, DMH was an organization of the Ministry of Agriculture and Forestry, but in July 2007 it was transferred to the Prime Minister's Office with the new name of Water Resources and Environment Administration (WREA). This organizational change has been made according to a new policy to unify controls of water resources and environment. Under this reform, the Agricultural Weather Section has been transferred from the Meteorological Network Division to the Climatological Division, and this have caused partly modification in the working shift system which has been recommended in the Basic Design at the time of project planning, i.e., abolishment of second shift engineers, attendance of a forecast manager on the first shift of Saturday and Sunday, abolishment of staff assignments in the data communication section, weather monitoring section and aviation weather section in the second shift on Saturday and Sunday, but no report has been provided about consequences in terms of affecting meteorological observation activities by such changes in the operation shift.

### (2) Technical Aspects of Operation and Maintenance

After the completion of the project, technical training and practice on operation and maintenance of the facilities have been conducted with assistance of JICA experts in 2008 and 2009. Further, successive training by JICA senior volunteer experts are planned in 2010 and 2011. Major subjects of training are; basic knowledge on electronics and function of radar; daily, monthly and semi-annual maintenance and operation technologies; testing tools and measurements of signals and performance; trouble shooting method. Trainees who completed such a training course are as per attached Table-2. A comment from DMH on the training has been provided that states that due to lack of basic knowledge of mathematics, physics, English, electronics, ICT, etc., it is difficult to understand the teaching by Japanese experts, therefore, further continuous assistance of technology transfer is required. In this regards, however, meteorological observation activities and its products (weather information, forecast, etc.) have been performed as instructed by manuals, and on several instances programs of science and mathematics education have been conducted. Nevertheless, it might be still necessary to enhance the quality of counterpart staff in the stage when DMH activities would progress to advanced stage to utilize data and information for new applications such as prevention and forecast of flood disasters.

### (3) Financial Aspects of Operation and Maintenance

Responding to the question to DMH concerning financial status, they replied that all of required expenditures will be disbursed by the government. Since it is inferable that required expenses are fully budgeted, no constraints in financial sustainability are identified.

### (4) Current Status of Operation and Maintenance

This project is thought to have been performed smoothly except some technical challenge.

Some problems have been observed in terms of technical aspects, therefore sustainability of the project effects is fair.

【Table-1】 State of Target Attainment

Index Item			Baseline	Target		Actual Performance			Attainment
			2004	Target Year	Target Level	2006	2007	2008	
1	Precipitation Monitoring Capability	Spacial Resolution	115km	2006	2.5km	2-3 km	2-3 km	2-3 km	Attained
		Time Resolution	3 hours	2006	10 min.	10 min.	10 min.	10 min.	Attained
2	Weather Monitoring Frequency		3 hours	2006	1 hour	1 hour	upto 15 min	upto 15 min	Attained
3	Atmospheric Disturbance Observation (air control)		20km (Visual)	2007	250km (Lader)	240 km (Lader)	240 km (Lader)	240 km (Lader)	96%
4	Frequency of Alarm Information Service		1-2 times /day	2008	Increase of service time				Not Replied
					On time and rapid service			On time and rapid service	Attained
5	Issuance of Air Turbulence Warning		Unadministered	2008	Real time warning			Real time warning	Attained
6	Lead Time for Water Level Forecast		To next day	2008	To 3 days after	To next day	2 days	3 days	Attained

【Table-2】 Training by JICA after 2008

Training Subject	Unit	2008	2009	2010	2011
		JICA Expert		Senior Volunteer	
Operation and Maintenance	Person	6	6	Scheduled	
Data Application (Forecaster)	Person	8	8	Scheduled	
Maintenance of IC Equipment and Rader	Person	-	-		Scheduled