Internal Ex-Post Evaluation for Grant Aid Project

conducted by Pakistan Office: March, 2013

Country Name	The Project for the Improvement of the Flood Forecasting and Warning System for Lai Nullah Basin
Pakistan	

I. Project Outline

Project Cost	E/N Grant Limit: 661 million yen		Contract Amount: 659 million yen
E/N Date	August, 2005		
Completion Date	March, 2007		
Implementing Agency	Pakistan Federal Flood Commission (FFC), Meteorological Department (PMD), Tehsil Municipal Administration, Rawalpindi (TMA)		
Related Studies	Basic Design Study: August, 2004 – March, 2005		
Contracted Agencies	Consultant(s)	CTI Engineering International	
	Contractor(s)	Mitsubishi Corporation	
	Supplier(s)	-	
Related Projects (if any)	[Japan's cooperation] ・ The study on comprehensive flood mitigation and environmental improvement plan of Lai Nullah Basin (Technical Cooperation, 2003) ・ Strengthening of Flood Risk Management in Lai Nullah Basin (Technical Cooperation, 2007-2009) ・ Project for National Disaster Management Plan in the Islamic Republic of Pakistan (Technical Cooperation, 2010 -2012) ・ Emergency Import Support Loan (flood and disaster control) (Japanese ODA Loan, 2011) [Other donors' cooperation] ・ River improvement for flood area of Lai Nullah Basin (ADB, 2003)		
Background	Lai Nullah basin (234.8km^2), the economically and politically important area, faced frequent floods during monsoon season (July-September), causing damages approximately every three years. The flood on July 2001 was the largest (by the time of the Basic Design of this project), causing 74 deaths and 3,000 partially- or fully destroyed houses. The flood forecast was not accurate, and flood warning was not issued immediately, thus causing insufficient time for evacuation.		
Project Objectives	Outcome To strengthen flood forecasting and warning system in Lai Nullah Basin by developing related facilities and equipment.		
	Outputs(s) Japanese Side ・ Construction of 2 water level gauging stations, 6 rainfall gauging stations and 10 flood warning posts ・ Procurement equipment at PMD Islamabad Master Control Station, 6 rainfall gauging stations, 2 water level gauging stations, TMA Rawalpindi Executive Warning Station, 10 flood warning posts, 2 monitoring station ・ Soft component: technical assistance in management and engineering Pakistan Side ・ Site clearance ・ Construction of security facilities for equipment ・ Utilities		

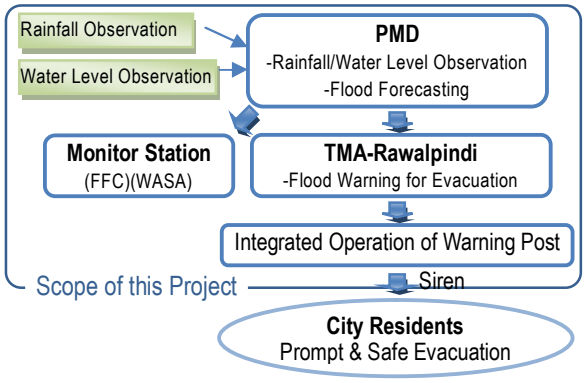


Figure1:Scope of the Project

II. Result of the Evaluation

Summary of the Evaluation

Lai Nullah basin faced frequent floods during monsoon season, causing damages approximately every three years. The flood forecast was not accurate, and flood warning was not issued immediately, thus causing insufficient time for evacuation.

This project achieved the expected outcome, which is to strengthen flood forecasting and warning system in Lai Nullah Basin, as shown in the rain gauging capacity on both banks of the basin and increasing the warning coverage area, and contribution of the system (both hard and soft components) to surprisingly mitigate damages by massive rains and floods occurred in 2010 and 2011.

As for sustainability, some problems have been observed in terms of structural and technical aspects and current status of operation and maintenance due to difficulties in deployment of capable staff and lack of some spare parts However, the relevant authorities try to ensure necessary budget and maintain the operations established through the Project on their own.

For relevance, the project has been highly relevant with Pakistan'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, both the project cost and the project period were within the plan.

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

1 Relevance

This project has been highly relevant with the Pakistan's development policy (e.g. mitigation of flood damages as set in the National Flood Mitigation Plan), development needs (e.g. better flood forecast and warning in the Lai Nullah basin), as well as Japan's ODA policy "Country Assistance Policy toward Pakistan" at the time of both ex-ante and ex-post evaluation. Therefore, relevance of this project is high.

2 Effectiveness/Impact

This project has achieved its objectives of ensuring the rain gauging capacity on both banks of the basin and increasing the warning coverage area by construction of rainfall and water level gauging stations, flood warning posts, and the procurement of related equipment, while some equipment such as telemeter and information and communications device has not been fully utilized due to lack of capacity (see "4. Sustainability"). Although this problem has not affected the effectiveness so far as the conditions of the equipment is still good, it may cause troubles to the system in the future in case of more serious problems with the equipment. The effects of this project has been combined with the effects of the technical cooperation project to strengthen the forecasting and warning system and attained the zero casualties during the recent floods in 2010 and 2011. Therefore, effectiveness/ impact of the project is high.

PMD Master control room for flood forecasting and warning system

Quantitative Effects

Indicator(unit)	baseline value (2005)	target value (2010)	actual value (2010)	actual value (2011)
Rain gauging area	approx. 50% (average rainfall on only eastern bank of the basin)	100% (average rainfall on both banks of the basin)	100% (average rainfall on both banks of the basin)	100% (average rainfall on both banks of the basin)
Warning coverage area	10% of flood area in 2001 (100 year probability rainfall)	60% of flood area in 2001 (100 year probability rainfall)	Approx. 60% of flood area in 2010 (100 year probability rainfall)	Approx. 75% of flood area in 2011 (100 year probability rainfall)

Source: Interview to PMD and Federal Flood Commission (FFC)

3 Efficiency

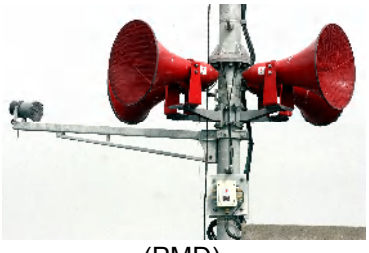
The outputs of the project were produced mostly as planned, and both project period and project cost were within the plan (ratio against plan: 97%, 95%). Therefore, efficiency of this project is high.

4 Sustainability

The facilities/ equipment provided by the project have been maintained by the respective agencies: Federal Flood Commission (FFC) in charge of coordination, flood planning and monitoring, Pakistan Meteorological Department (PMD) in charge of forecasting, Tehsil Municipal Administration, Rawalpindi (TMA) in charge of warning, and Rawalpindi Water and Sanitation Authority (WASA) in charge of drainage and monitoring.

The project has some problems in structural and technical aspects and the current status of operation and maintenance. On the structural aspect, difficulties are observed in deployment of capable staff in FFC, where PMU for O&M has not been established since the construction of their working place is still on going. No serious problem is seen in other organizations. On the technical aspect, some staff members of FFC and PMD lack capacity to operate and maintain the equipment, though PMD has its own training system to improve the capacity of the staff. As for the current status of operation and maintenance, there is a lack of some spare parts to troubles in FFC and PMD due to unavailability of the concerned equipment in Pakistan. However, no problem has been observed in the financial aspect: despite the financial crunch in Pakistan these years, all relevant agencies are trying to maintain the system and staff by themselves (i.e., they are given budgetary priority since the necessity of the project is well recognized in Pakistan), and have actually maintained minimum budget to operate the system so far. Therefore, sustainability of this project is fair.

Water level gauging station



(PMD)
Warning system (TMA)

III. Recommendations & Lessons Learned

Recommendations for Implementing agency

- Construction of the working space for FFC should be accelerated to maintain their activities.
- Constant trainings for FFC will be needed to operate and maintain systems.
- PMD should continue to implement training to improve capacity of its own staff for operation and maintenance of the equipment.
- Some equipment need spare parts in case of failure of the system. PMD should make a provision for additional maintenance budget for smooth equipment operation.