Internal Ex-Post Evaluation for Grant Aid Project

conducted by China Office (February, 2014)

Country Name	The Project for the Establishment of the Monitoring Network for Acid Deposition, Dust and Sandstorm
People's Republic of China	

I. Project Outline

Project Cost	E/N Grant Limit: 739 million yen		Contract Amount: 322 million yen
E/N Date	December, 2006		
Completion Date	March, 2008		
Implementing Agency	China National Environmental Monitoring Center (CNEMC) and environmental monitoring center in each target city		
Related Studies	Basic Design Study : March, 2006 – January, 2007, Detailed Design Study : January, 2007 – March, 2007		
Contracted Agencies	Consultant	SUURI-KEIKAKU Co., Ltd., Green Blue Corporation	
	Contractor	Sirius Corporation, Ogawa Seiki Co., Ltd	
	Supplier	-	
Related Projects (if any)	The Acid Deposition Monitoring Network in East Asia（EANET）		
Background	In accordance with economic growth, China had experienced massive emission of air pollutants and the coverage of emission had expanded. SO2 from coal combustion and NOx from factories and vehicles had created serious air pollution issues and had caused acid rain which had become the transnational concern. The State Environment Protection Administration (SEPA) formulated the 5 year national environmental protection plan following to the 11th five-year plan (2006-2011) in which the institutional strengthening of environmental monitoring centers was regarded as one of the objectives. As a measure to the issue of acid rain in the East Asia, the Acid Deposition Monitoring Network in East Asia（EANET）was established with the initiative of Japan. EANET supposed that 13 countries monitor the acid deposition in a common method and submit the data. However, regardless of the huge geographical area, the number of sites for data collection/submission of China was limited to 9 sites in 4 cities. Considering its impacts on the environment of East Asia as a whole, the degree of China's participation to EANET was not insufficient. As a measure to the dust and sandstorm problem, China, Mongolia, South Korea, and Japan had cooperated with the international agencies to launch ADB-GEF Project for dust and sandstorm in March, 2003, in which the related parties were formulating a master plan. The master plan focused on implementing a short-range forecast for warning based on the regional monitoring network. The four countries agreed to monitor and share the data based on the master plan. However, the number of data was still insufficient to develop an effective dust and sandstorm forecast.		
Project Objectives	Outcome To strengthen acid deposition, dust and sandstorm monitoring systems in China by procuring and installing equipment for monitoring sites (34 sites for acid deposition monitoring and 16 sites for dust and sandstorm monitoring) (Before implementing the project, a component for the dust and sandstorm monitoring systems was cancelled after the talks with the Chinese side and the project focused on acid rain component only.)		
	Output (s) Japanese side ・ Procuring and installing equipment at acid deposition monitoring sites (34 sites) : air pollution measuring instruments, precipitation samplers, rain gauges, data transmission systems and others ・ (Plan) Procuring and installing equipment at dust and sandstorm monitoring sites (sites) : lidar, anevovane, visibility meter, data transmission systems and others Chinese side ・ Constructing monitoring stations or renovating of monitoring rooms to install air pollution measuring instruments, ensuring power supply and others ・ Securing places for installation of precipitation samplers and rain gauges, and preparing fixed foundations ・ Securing utilities including power supply ・ Constructing monitoring stations or renovating of monitoring rooms to install lidar, and installing a roof skylight		

II. Result of the Evaluation

Summary of the Evaluation
In accordance with the economic growth, China experienced a problem of massive emission of air pollutants and the expansion of its coverage, which also had become the transnational issue. EANET, which was established with the initiative of Japan needed to strengthen the measures to transnational environmental issues by collecting acid deposition observation data from East Asian countries.

This project has somewhat achieved its objectives of “to strengthen acid deposition monitoring systems in China”, as the number of data has increased and the every hour continuous monitoring has become possible partially. However, data were not obtained from the all centers under the project. In addition, the number of sites for data collection to be submitted to EANET has not increased. As for sustainability, there are problems on the financial aspect and the current situation of operation and maintenance as some equipment items are broken and budget is not sufficient to repair those items.

For relevance, the project has been relevant with China’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 slightly exceeded the plan.

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

1 Relevance

This project has been highly consistent with China’s development policies on environment protection (strengthening the institutional capacity of environment monitoring centers as set in the11th five year plan, the national environmental protection five year plan, and the 12th five year plan), development needs (strengthening monitoring systems to combat acid rain and air pollution issues), as well as Japan’s ODA policy to China (prioritizing environmental protection) at the time of both ex-ante and ex-post evaluation. In addition, air pollution is not only the issue in China but transnational environmental issue. Therefore, relevance of this project is high.

2 Effectiveness/Impact

After technical evaluation of some of the equipment, Chinese side and Japan sides decided to cancel the component of the procurement and installation of equipment at dust and sandstorm monitoring sites (16 sites), and the project implemented the acid rain component only. Therefore, the effectiveness/impact of this project is evaluated in terms of the “strengthening of the acid deposition monitoring systems”.

This project has somewhat achieved its objectives of “to strengthen acid deposition monitoring systems in China”, as the number of data has increased and the every hour continuous mesurement has become possible partially, as a result of introducing the data measuring instruments. As to the technical capacity, the manuals were prepared and each monitoring center has strengthened the technical capacity of engineers for operation, maintenance and repair of the installed equipment. CNEMC carried out technical training twice to the target monitoring centers to strengthen the capacity of data measuring, compilation/reduction and analysis. As a result, the capacity for measuring acid deposition and air pollution has strengthened, the data have been compiled, and the environment management technical level has been strengthened.

On the other hand, although the every hour continuous morning at the 34 sites was anticipated at the time of ex-ante evaluation, actually only 20 sites implemented the every hour continuous measuring completely in 2010. Eight sites partially implemented it, while 6 sites did not carry out it at all. This situation happened because of the sporadic blackouts (1 site), breakdown of the equipment as the altitude of the site exceed the critical elevation of the equipment (1 site) and others. At the time of ex-ante evaluation, 43 sites including 34 project target sites were anticipated to submit data to EANET, there was no agreement on submission of the data before project implementing

As to impact, although it is too early to reflect the results of the project to national policies, however, the reports and researches submitted by CNEMC to SEPA were utilized as reference for China’s environmental policy and institutional formulation. Japan and China agreed to share the data from the project for three years after the project completion (2008-2010), and the data were submitted accordingly. However, data on pH and EC was measured by the equipment procured by Chinese side by its own and therefore was not included in the agreement between the two countries to be shared. Since other data were supplemental data for the two items, the submitted data were not fully utilized. Further, in order to share the data after 2011 and utilize the shared data for research publication, a new agreement needs to be concluded. However, no talks have been made on the data sharing at the time of ex-post evaluation. As a result, data after 2011 was not collected at many sites for the ex-post evaluation.

Therefore, effectiveness/impact of the project is fair.

Quantitative Effects

	Actual value at the time of ex-ante evaluation（BD）	Target value of the target year （2009 - one year after completion）	Actual value of the target year （2009）	Actual value 2010	Actual value at the time of ex-post evaluation* （2012）
Indicator 1: Increase in the number of data at the monitoring centers which were newly introduced the automatic measuring instrument.	Once a day (12 days per month)	Every hour continuous measuremet （24/day）	Every hour continuous measuremet （24/day） • The number of centers which measure all : 8 centers • The number of centers which measure partly : 17 centers. • The number of	Every hour continuous measuremet （24/day） • The number of centers which measure all : 20 centers • The number of centers which measure partly : 8 centers. • The number of	Same as 2010

			centers which does not measure the data: 9 centers.	centers which does not measure the data: 6 centers.	
Indicator 2 : The number of data on acid deposition, and implementation of data quality control	2 items (pH、EC)	Increased to 10 items (pH、EC、3 components of anion, and 5 components in cation) at the international quality standard.	Achieved	Achieved	Same as 2010
Indicator 3 : The number of sites for data collection to be submitted to EANET	9 sites	43 sites (Maximum)	8 sites	8 sites	8 sites
Indicator 4 : Obtaining dust and sandstorm observation data based on ADB-GEF	No regular data observation	NA			

（Source）CNEMC, Japan Environmental Sanitation Center

*Based on an interview with CMEMC. However, no specific data were obtained.

3 Efficiency

Although the composition of procurement and installation of dust and sandstorm monitoring equipment was cancelled, the output of the procurement and installation of acid deposition monitoring equipment was produced as planned. Due to the cancellation of the dust and sandstorm component, the project cost was substantially below the plan (ratio against the plan: 41%). However, the project period slightly exceeded the plan (the ratio against the plan: 106%) as the negotiation needed between the implementing agencies and the consultant to reach the agreement on the specification of the equipment.

Therefore, efficiency of this project is fair.

4 Sustainability

The equipment procured under the project is maintained by each environmental monitoring center in each target city, and is overseen by CNEMC. Under CNEMC, there were two categories of monitoring centers of Provincial level center and Prefectural level center, and all of the centers under the project are categorized Prefectural level centers. Institutionally, staff has been allocated as planned and the implementation structure is sustained what it was considered desirable at the time of ex-ante evaluation. As to the reporting system, the data of the Prefectural level monitoring centers are reported to the Provincial level monitoring centers which report to CNEMC the provincial monitoring situation. The data are managed by the Prefectural level monitoring centers. According to CNEMC, data on 24 hour continuous data measuring at some provincial level monitoring center including the sites under the project are reported normally, therefore, CNEMC thinks there is no problem on the data measurement at the Prefectural level monitoring centers.

CNEMC continues training to environmental monitoring centers by nominating different targeting centers every year.

The project has a financial problem. The operation and maintenance budget of each monitoring center are allocated from respective local government. Maintenance requires more expenses than the amount estimated at the time of ex-ante evaluation. Some centers cannot repair the equipment due to insufficient operating budget.

According to CNEMC, the equipment is fully utilized at most of the centers and the facilities of centers as a whole function normally. In addition, the regular inspection is carried out. However, there is a problem on the current situation of operation and maintenance as some equipment items at some centers are not repaired due to the insufficient operating budget. However, according to CNEMC, those equipment items are being repaired or replaced with the Chinese side with its own resources, and therefore 24 hour continuous measurement is being carried out at some centers including the centers under the project.

Thus, as some centers have problems on financial aspect and the current situation of operation and maintenance, sustainability of the project effects is fair.

III. Recommendations & Lessons Learned

Recommendations:

1. CNEMC is recommended to continue identifying the breakdown of the equipment, to advise environmental monitoring centers to repair the equipment, and ensure the 24 hour continuous measurement is carried out.
2. SEPA and EANET are recommended to take the initiative to conclude a new agreement, and continue sharing the data accordingly.

Lessons Learned :

1. In case of a project which aims to combat transnational environmental issues, an agreement needs to be reached on the continuous use of the data by stakeholders in both Japan and a recipient country at the project planning stage. JICA

should pay attention fully whether this aspect is incorporated.

2. In order to monitor the environment accurately, analysis of detailed data is needed. Therefore, the sites for the equipment installation should be selected with due attention to the specification of the equipment including critical elevation.

Equipment utilized at Changdao, Shandong Province (indoor)

Equipment utilized at Changdao, Shandong Province (outdoor)