Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Mongolia office:March, 2013

Country Name	Development of Human Capacity for Weather Forecasting and Data Analysis
Mongolia	

I. Project Outline

Project Cost	502 million yen	
Project Period	February, 2005 – October, 2008 Extension Phase: April, 2008 – October, 2008 (7 months)	
Implementing Agency	Ministry of Nature, Environment and Tourism, National Agency for Meteorology and Environment Monitoring (NAMEM)	
Cooperation Agency in Japan	Japan Meteorological Agency, Japan Weather Association	
Related Projects (if any)	Japanese Cooperation: ・The Project for Upgrading of Meteorological Observation and Forecasting System (Grant Aid, 1998)[1] ・The Project for Improvement of Meteorological Information Network (Grant Aid, 2003)[2] ・Dispatch of Expert（NAMEM Master Plan）	
Background	In Mongolia, agriculture and livestock farming are key industries which accounted for about 20% of GDP and 42% of working population of the country at the time of planning of the project. In this situation, country-wide drought and dzud (cold/snow conditions which cause damage to agriculture and livestock farming sector) have brought about serious damages to the society and economy of Mongolia. It is also pointed out that climate change due to global warming, and long-term changes of natural surroundings and terrestrial ecosystems with climate change such as desertification would exert negative impact on people's life of Mongolia by affecting agriculture, livestock farming, water resources, etc. NAMEM has been promoting systematic implementation of variety of activities based on the master plan developed with assistance of a JICA expert. Furthermore, the meteorological services in Mongolia have been well developed in terms of facilities and equipment due to the two Grant Aid assistances of the Government of Japan. As for technical aspects, however, the total technical level of NAMEM in terms of weather information has yet to be enhanced by introducing advanced technologies in the field of numerical weather prediction and weather forecasting using computer models. This situation has been impeding the development of the meteorological sector. With the background above, the Mongolian government requested technical assistance from the Japanese government.	
Inputs	Japanese Side	Mongolian Side
	1. Experts: 14 persons 2. Trainees Received: 11 persons 3. Equipment 218 million yen 4. Local Cost 23 million yen	1. Staff Allocated: 7 persons 2. Building and Facilities: project office and seminar room in NAMEM including electricity and water expenses 3. Local Cost 235.1 million tugrig
Project Objectives	Overall goal Weather information is utilized for natural disaster management and climate change impact assessment in Mongolia.	
	Project Purpose More reliable, useful and timely weather information including dust storms and yellow sand (DSS) data is provided through developing the capacity of the weather service staff and related environmental experts.	
	Output ・Operational numerical weather prediction using a regional model around Mongolia is implemented. ・Climate change projection due to global warming using a climate model is implemented. ・Short/middle/long-term weather forecasts based on NWP outputs are issued. ・Drought/dzud early warning system (DDEWS) is established. ・Knowledge and understandings about weather and climate information in central/local governments, related organizations/agencies and end-users including nomads and general public in Mongolia are deepened. ・Weather observation and forecasting systems especially weather radar and computer network are stably operated. ・Information on monitoring DSS is issued.	

[1] Meteorological prediction system such as radar system and automatic weather observation system was improved around Ulaanbaatar.

[2] Automated surface observing system, high-speed telecommunication system (satellite communication system), GTS message exchange system, data analysis and processing system, etc. were improved for NAMEM headquarters and 21 observatories nationwide.

II. Result of the Evaluation

Summary of the Evaluation

For Mongolia that is dependent on agriculture and livestock farming, natural disasters such as drought and dzud have been one of the factors to cause serious damages to the society and economy. It was urgent, therefore, to introduce and utilize advanced technologies including numerical weather prediction and meteorological analysis in order to provide more accurate weather service.

This project has achieved smooth provision of i) weather forecasts, ii) climate change predictions, iii) DDS monitoring data for the public, including nomads who utilize meteorological information, and iv) environmental information (e.g. bag pasture condition maps) for the project purpose of "providing reliable and useful weather information". It also has largely achieved establishment of relevant national programme for overall goal of "utilization of meteorological information for disaster management and climate change impact assessment". As for sustainability, there was no problem observed in the project due to continuous importance of the meteorological sector, stable conditions of the implementing agency, transferred technologies (skills and knowledge) that CPs have acquired and utilized, and securing of sufficient budget. For relevance, the project has been highly relevant with Mongolia's development policy, development needs, as well as Japan's ODA policy. For efficiency, although the project cost was significantly higher than the plan and the project period was slightly higher than the plan, it can be justified by Output7[3] that was added in March 2005.

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

1 Relevance

This project has been highly relevant with Mongolia's development policy "provision of reliable and useful weather information" as set in "Development Programme of NAMEM on Meteorological and Environment Sector by 2015", development needs "mitigation of recently increasing natural disasters (e.g. drought, flood, damage by snow)", as well as Japan's ODA policy "JICA Country Assistance Programme", at the time of both ex-ante evaluation and project completion. Therefore, relevance of this project is high.

2 Effectiveness/Impact

This project has largely achieved the project purpose of "provision of reliable and useful weather information" as well as overall goal of "preparation and utilization of meteorological information for disaster management and climate change impact assessment". After the project, information on meteorological issues, climate change, drought and dzud prepared/revised by NAMEM has been widely and timely open and shared by Mongolian citizens and also the number of access to NAMEM's website has been increasing. Regarding overall goal, National Programme for Climate Change and other policies/programmes related to disaster prevention have been developed based on weather and climate information provided by NAMEM. Therefore, effectiveness/impact of this project is high.

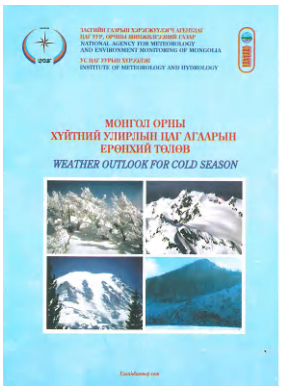
Achievements of Project Purpose and Overall Goal

Outcome	Indicators (plan)	Achievement
Overall Goal (utilization of meteorological information for disaster management and climate change impact assessment)	Work plan of natural disaster management and climate change impact assessment of Mongolia are established and implemented.	(at the time of ex-post evaluation) ● Evaluation report on climate change was created in 2009. ● "National Programme for Climate Change" was approved by the national assembly in January 2011. ● Plans based on the above programme were presented at the cabinet meeting in November 2011,and steadily implemented. ● "National Policy for Disaster Prevention" and "National Programme for Capacity Enhancement of Natural Disaster Prevention" were discussed and approved at the national assembly in May 2011.
Project Purpose (Provision of reliable and useful weather information)	Weather forecasts using regional numerical weather prediction and new weather analysis methods are provided twice a day for short-term/once a day for middle-term/once a month for long-term	(at the time of project completion) Short-term and mid-term weather predictions were provided as planned. Long-term predictions were provided twice a year(1).
	Information on climate change projection over Mongolia is published once before the end of the project period.	The projection was published at the end of October, 2008.
	Information on drought/dzud is provided annually (at the end of August).	Bag-scale pasture condition maps were provided through bulletin published by agricultural meteorology section, newspapers and so forth. (August every year since 2007)

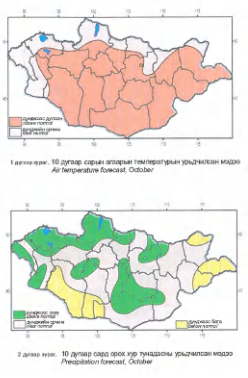
3 Regarding the technical cooperation project "Establishment of Yellow Sand Monitoring Network" that was requested by the Government of Mongolia, it was decided to be implemented as part of this project since the implementation agency for both projects is NAMEM.

		Information on vegetation index distribution and biomass distribution, which were developed based on satellite pictures, were provided through website.
	DSS monitoring data is provided for 300 days in a year.	The number of days in which monitoring was not conducted between January and July 2008 was 9 days. Data acquisition rate: 95%
	Satisfaction level of users (public administrators, nomads, etc.) on the available weather forecast information is improved.	It was confirmed that satisfaction level of participants (public administrators, nomads, etc.) of workshops was improved.

Source: Project Completion Report, Interview with CPs
(Note1) Long-term predictions are provided once a month and seasonal predictions are provided twice a year at the time of ex-post evaluation.



Seasonal Prediction Booklet (2011)



Receiving Facility of DDS Monitoring Data

DDS Monitoring Equipment

3 Efficiency

The inputs were appropriate for producing the outputs of the project, and although the project cost was significantly higher than the plan (ratio against the plan: 181%) and the project period was slightly higher than the plan (ratio against the plan: 118%), those ratios are justified by the activities added after the project commencement (200 million, out of additional 225 million yen, was spent for DDS monitoring equipment for Output7. Taking the input of concerned experts into consideration, the increased amount was entirely used for Output7.) Therefore, efficiency of this project is high.

4 Sustainability

This project is consistent with “Comprehensive National Strategy Development (2008-2021) based on the Millennium Development Goal” in an ongoing manner as described “strengthening of adaptability towards climate change” as a prioritized issue. The implementing agency, NAMEM, has newly established numerical prediction and climate change research section and employed additional experts. It also has secured budget enough to purchase new equipment and to plan and conduct training courses. Most of CPs who received technology transfer still remain at NAMEM and play a leading role, thus it can be seen that the effectiveness of the project has been steadily continuing and developing. This project has no problem in policy background, structural, technical, and financial aspects of the implementing agency; therefore, sustainability of this project is high.

Supercomputer purchased by NAMEM

III. Recommendations & Lessons Learned

Recommendations for Implementing agency
NAMEM has been steadily managing and renewing its machinery/equipment and developing human resources. It is desirable that NAMEM continues to secure sufficient budget and to make an effort to enhance the positive effects generated by the project.

Lessons learned for JICA
This project was a technical cooperation by using facilities and equipment provided by Grant Aid Assistance, which resulted in enhanced effect of the entire project by Japan. Technology, which is immediately introduced in the routine works of an implementing agency, contributes to the remaining of personnel and technological sustainability after the project completion.