

BRIEF ON ESTABLISHMENT OF ENVIRONMENTAL MONITORING SYSTEM IN PAKISTAN

The ‘Establishment of Environmental Monitoring System in Pakistan’ project has established the foundation for building capacity of the monitoring laboratories of Pak-EPA and Provincial EPAs in order to enhance regulatory compliance, and environmental management and protection. So far, this project has worked as a network for monitoring of continuous air monitoring in Federal and Provincial capitals. Furthermore, the Federal and Provincial EPAs have been upgraded and a new laboratory has been established at Islamabad. These laboratory facilities are capable to monitor and analyze liquid and gaseous parameters of NEQS.

2. A ‘Technical Cooperation for Establishment of Environmental Monitoring System’ has also been signed with JICA by M/o Environment and Federal and Provincial EPAs on 30th April, 2005. According to the agreement, Government of Japan will dispatch technical experts in the area of environmental monitoring and analysis and also provide trainings to enhance the capacity of Federal and Provincial EPAs.

3. The Project has the following objectives:

- To establish the Monitoring Laboratory Network that aims to develop the technical capacity needed to support the environmental monitoring system.
- To grasp the present environmental condition through environmental monitoring network.
- To compare the analytical data with the Environmental Quality Standard.
- To secure the scientific knowledge needed to take administrative measures for improving the deteriorated air and water quality.
- To ensure the effective operation of the regional aims of EPAs as well as their monitoring and protection functions.

4. The first phase of the project has been completed by Pak-EPA with Grant in Aid from the Government of Japan. First phase of the project has been completed. Central Laboratory for Environmental Monitoring and Networking (CLEAN) has been established in Islamabad and all the laboratories at Provincial EPAs have been upgraded with state of art equipment. Monitoring Stations and all the equipment have been installed in the Federal and Provincial EPAs. Seven fixed and three mobile

monitoring stations have been provided to Federal and Provincial EPAs. Remaining six fixed and one mobile air quality monitoring stations will be established in second phase of the project. In order to fully mobilize the air and water quality monitoring network in Pakistan, there is a dire need to complete the project in order to appoint all the staff of the project and to establish remaining monitoring stations as agreed with the Government of Japan.

5. The present Air Quality Monitoring System has been established at Federal and Provincial EPAs. The difference of fixed and mobile monitoring stations is only the mobility of the station; otherwise overall measuring parameters are the same. The mobile laboratories will be used to identify high pollution spots for installation of more fixed air monitoring stations in those new areas in future. Detail of facilities established under EMS project is given below:

Plan of Air Quality Monitoring System (Established)*

Location	Fixed Monitoring Station	Mobile Monitoring Station	Data Collecting & Analyzing Equipment	National Data Surveillance Center
Islamabad	1(1)	1 (1)	-	1 (1)
Karachi	4 (2)	1 (1)	1 (1)	--
Lahore	4 (2)	1 (1)	1 (1)	--
Peshawar	2 (1)	--	1 (1)	--
Quetta	2 (1)	1 (0)	1 (1)	--
Total	13 (7)	4 (3)	4 (4)	1 (1)

* Units established under Grant in Aid from Government of Japan during the fiscal year 2006-07.

b) Air Quality Monitoring Stations:

Function of air quality monitoring stations is to determine the air quality through real time data collection and calculating this data on average such as hourly, daily, monthly or yearly basis.

i). Fixed Air Quality Monitoring Station:

Seven Fixed Air Quality Monitoring Stations have been installed in Federal & Provincial EPAs which are equipped with analytical ambient air quality analyzers to generate a real-time data on air quality at a fixed location.

ii) Mobile Air Quality Monitoring Station:

Three Mobile Air Quality Monitoring Stations have been provided to the Federal EPA, EPA-Punjab and EPA-Sindh. These stations comprise if air monitoring trucks having the same analyzers as in the fixed monitoring stations. With the help of these stations, the data on air quality at any location under observation can be obtained. By using these stations, some other points with higher pollution level may be identified for installation of fixed air quality monitoring stations in those areas in future.

iii). Stack Emission Monitoring:

Five stack emission monitoring vans have been provided to the Federal and Provincial EPAs. These monitoring vans are equipped with complete set of stack emission monitoring equipment to be used for sampling and analysis of stack emission of industrial units.

c) National Data Surveillance Centre:

National Data Surveillance Centre (NDSC) for air quality has been established at Central Laboratory for Environmental Analysis & Networking (CLEAN), Pak-EPA. Function of Data Surveillance Centre is to calculate the average data of each parameter received from all the stations. The received data is then compared with the Ambient Air Quality Standards.

By obtaining the pollution data from these centers, Pak-EPA with the co-operation of Ministry of Environment will be able to improve the ambient air quality of Pakistan. Another important function of these monitoring stations is to determine the actual air pollution level and find the way to improve it. The continuous air monitoring data is continuously being retrieved from the Provincial EPAs and federal EPA also..

Water Quality Monitoring System:

The detail of Water Quality Monitoring System is as follows:

Plan of Water Quality Monitoring (Established)*

Location	Mobile Water Quality Monitoring Laboratories	Analytical Laboratory	Data Surveillance Center	Training Centre
Islamabad	1 (1)	1 (1)	1 (0)	1 (1)
Karachi	1 (1)	1 (1)	-	-
Lahore	1 (1)	1 (1)	-	-
Peshawar	1 (1)	1 (1)	-	-
Quetta	1 (1)	1 (1)	-	-
Total	5 (5)	5 (5)	1 (0)	1 (1)

- Units established under Grant in Aid from Government of Japan during the fiscal year 2006-07.

a) Mobile Water Quality Monitoring Laboratories:

Mobile Water Quality Monitoring Laboratories consist of mobile vans which are also used for stack emission monitoring. Five monitoring vans have been provided one each to the Federal and Provincial EPAs. These Laboratories have two functions. First is to collect and carry the water samples to the analytical laboratory and the second is to analyze the basic parameters and necessary pre-treatment of samples before carrying the samples for laboratory analysis.

b) Analytical Laboratories:

Central Laboratory for Environmental Analysis & Networking (CLEAN) has been established at Federal EPA. CLEAN is equipped with the latest analytical water quality monitoring equipments. Analytical equipment and spare parts have also been provided to all the Provincial EPAs as per requirement for continuous water quality monitoring and to generate the analytical data for onward submission to the National Data Surveillance Centre (NDSC), Islamabad.

Training Centre:

Under this project, it is proposed that a training centre has to be established at CLEAN to provide technical training to the researchers and technical staff of the project. Analytical group training course for handling of analytical equipment and sampling apparatus will be organized in CLEAN for Provincial EPA's laboratory, researchers and staff. The training component consists of basic concept of environmental monitoring, initial operational and analytical training and on-job operational trainings. The training course will also include the environmental surveillance and actual counter measure technologies for stationary and mobile sources. The training course can accommodate about 20 to 30 participants at the beginning stage and gradually go for larger group training. Staff of Provincial EPAs, Certified Laboratories and NGOs will also be trained through different training modules.

6. EMS project was recommended for consideration of the ECNEC at an original capital cost of 1,089.10 million by CDWP on February 18, 2003. The ECNEC considered the summary dated 27th October 2004 submitted by the Planning and Development Division and approved the project at a total cost of Rs. 1098.242 million including foreign exchange component of Rs. 973.0 million. An amount of ¥ 1238.00 million (equivalent to Pak Rs. 660.00 million) was provided as Grant in Aid by Government of Japan.

7. The second phase of the project has been approved by ECNEC on 11th November, 2008 for a total budget of **Rs. 1233.0 Million** including foreign exchange cost of **Rs. 973.0 Million** and Local Component of **Rs. 260.0 Million**.