FACTSHEET

EANET

ACID DEPOSITION MONITORING NETWORK IN EAST ASIA

MONGOLIA

Policies and Practices Concerning Acid Deposition

1. CURRENT SITUATION AND PROGRESS

General Evaluation

The level of air pollution in Mongolia usually worsens during the winter and spring season. During winter, there is an increase in the use of energy for heating, in addition to cooking, which results in an increase in the levels of air pollution. The Gers and houses burn over 200,000 cubic meters of fuelwood every year. Suspended particulate matters (SPM) peak in winter. The yearly average concentrations of $PM_{2.5}$ observed at Ulaanbaatar monitoring site from 2014 to 2017 were about 50 μg/m^3 which was about five times higher than WHO guidelines of 10 μg/m^3. Whereas yearly average concentrations of PM_{10} observed at the same monitoring site from 2015 to 2017 were about 100 μg/m^3 which was about five times higher than WHO guidelines of 20 μg/m^3. Concentrations of SO_2 are also showing an increasing trend in Mongolia. With air pollution in Ulaanbaatar city increasing to a level above the WHO recommended limits, the government has been paying special attention to air pollution and considers it one of its highest priorities.

Main Pollution Sources and Trends

The primary source of air pollution in Mongolia is the combustion of coal and wood for cooking and heating in the Gers. Emissions of air pollutants from other sources, such as road traffic, open burning of agriculture residues and biomass, and brick industries, also impacting the air quality of Mongolia. In the capital city, about 80 percent of air pollution, in particular, particulate matters (PM), is contributed by Gers, 10 percent by road traffic, 6 percent by power and heating plants, and 4 percent by open burning of solid waste, soil and other sources.

National Ambient Air Quality Standards (NAAQS) vs. WHO Guidelines

Air Pollutants	Average Time	NAAQS (μg/m^3)	WHO Guidelines (μg/m^3)
TSP	20-min	500	-
	24-hr	150	-
PM_{10}	24-hr	-	50
	1-yr	-	20
$PM_{2.5}$	24-hr	-	25
	1-yr	-	10
SO_2	20-min	500	-
	24-hr	30	20
NO_2	20-min	85	-
	1-hr	-	200
	24-hr	40	-
	1-yr	-	40
O_3	1-hr	120	-
	8-hr	-	100

EANET

UN environment programme

ACAP

Participation in the EANET

The monitoring of acid deposition in Mongolia was started in August 1998. The government of Mongolia formally joined the EANET in November 2010 by signing the Instrument. The Central Laboratory of Environment and Metrology (CLEM) was designated as the National Center for the EANET, which works under the National Agency for Meteorology and Environmental Monitoring (NAMEM).

Following is the framework of institutional arrangement for implementing activities of the EANET in the country:

- National Focal Point: National Agency for Meteorology and Environmental Monitoring, Ministry of Environment and Tourism
- Scientific Advisory Committee Members: National Agency for Meteorology and Environmental Monitoring and National Committee on Reducing Environmental Pollution of Ministry of Environment and Tourism
- National QA/QC Manager: Central Laboratory of Environment and Metrology, National Agency for Meteorology and Environment Monitoring, Ministry of Environment and Tourism
- National Center: Central Laboratory of Environment and Metrology, National Agency for Meteorology and Environmental Monitoring, Ministry of Environment and Tourism

2. SITE INFORMATION

Mongolia's air quality control network has 31 stations in operation to monitor and assess concentrations of nitrogen oxides and sulfur dioxide regularly.

Monitoring Sites	Site Classification	Location			Parameters measured		
		Latitude	Longitude	Altitude (m)	Wet Dep.	Dry Dep.	Inland Water
Ulaanbaatar	Urban	47°55′13″N	106°54′43″E	1275	✓	✓	
Terelj	Remote	47°59′00″N	107°27′04″E	1550	✓	✓	✓

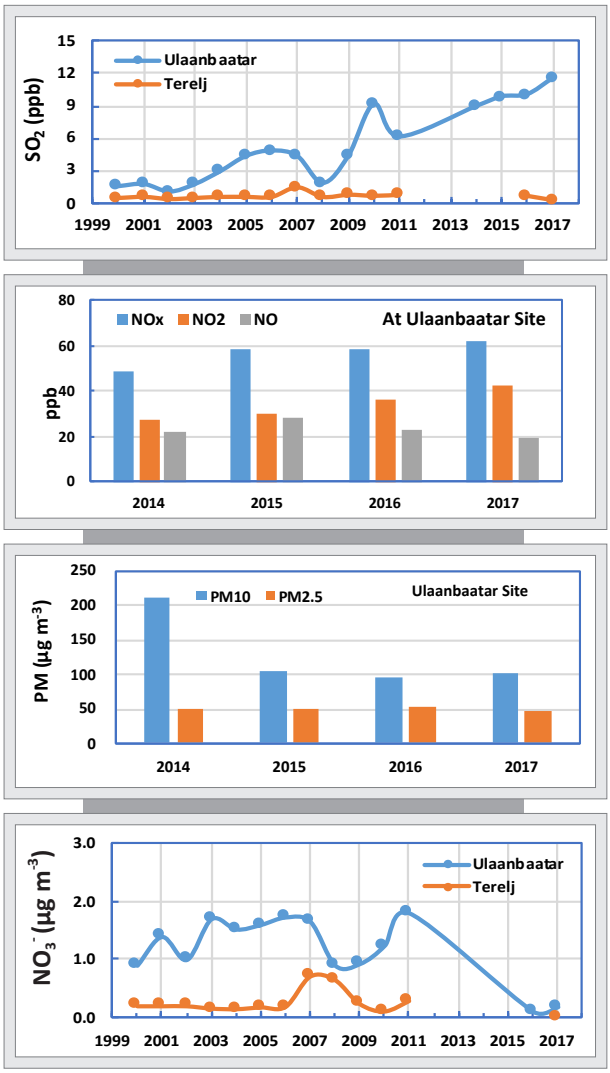
Monitoring Parameters

Monitoring Type	Monitoring Site	Parameters	Frequency
Wet Deposition	Ulaanbaatar and Terelj	pH, EC, SO_4^{2-}, NO_3^-, Cl^-, NH_4^+, Na^+, K^+, Ca^{2+}, Mg^{2+}	Daily (May to October)
Dry Deposition	Ulaanbaatar and Terelj	Gases (FP) : SO_2, HNO_3, HCl, NH_3	Weekly (UB) Biweekly (TR)
	UB4 (city center of Ulaanbaatar)	Aerosol (FP) : SO_4^{2-}, NO_3^-, Cl^-, NH_4^+, Na^+, K^+, Ca^{2+}, Mg^{2+}	Daily, continuously 15 minutes
		Gases • PM (Auto): SO_2, NO_2, NOx, CO, PM_{10}, $PM_{2.5}$, O_3	
Inland Aquatic Environment	Terelj river	pH, EC, alkalinity, SO_4^{2-}, NO_2^-, NO_3^-, Cl^-, NH_4^+, Na^+, K^+, Ca^{2+}, Mg^{2+}, PO_4^{3-}	5 times per year
Soil	Ulaanbaatar	pH (H_2O), pH (KCl) Exchangeable acidity	Every 3-5 years

3. HIGHLIGHTS OF MONITORING RESULTS

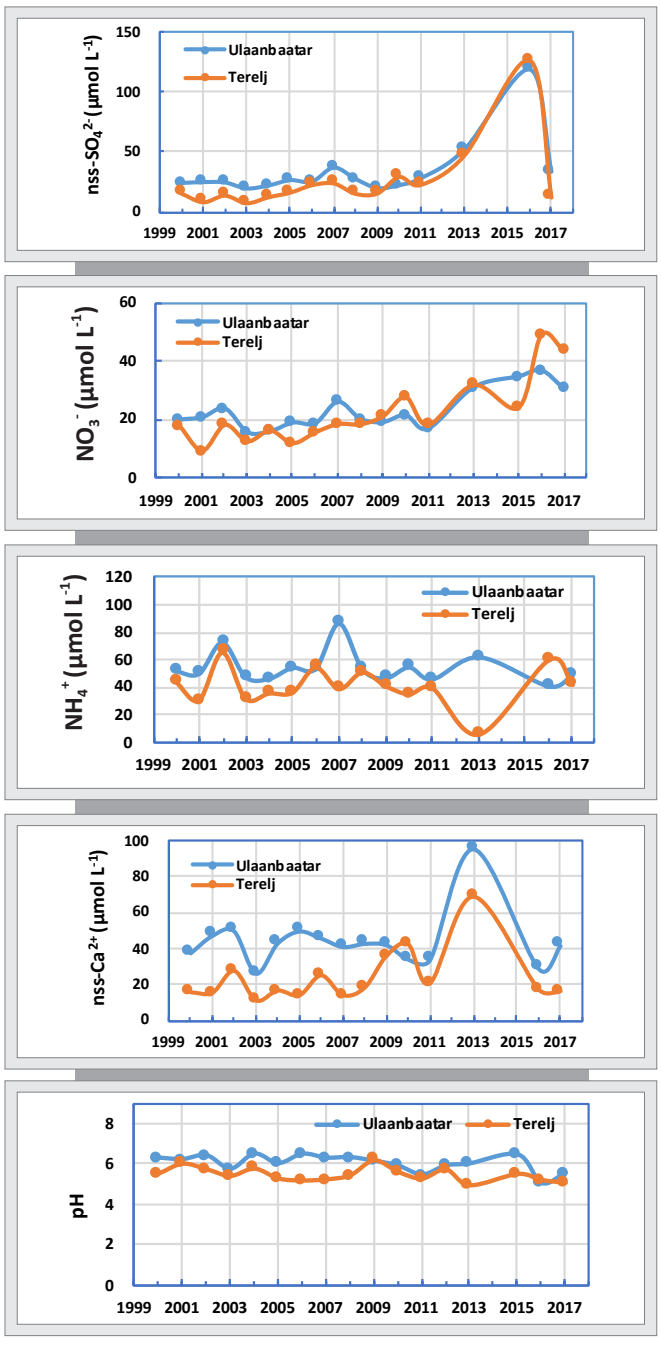
The following figures show the time-series trend of the annual average of important acid deposition parameters in the dry deposition, wet deposition, and inland water quality of Mongolia.

Dry Deposition



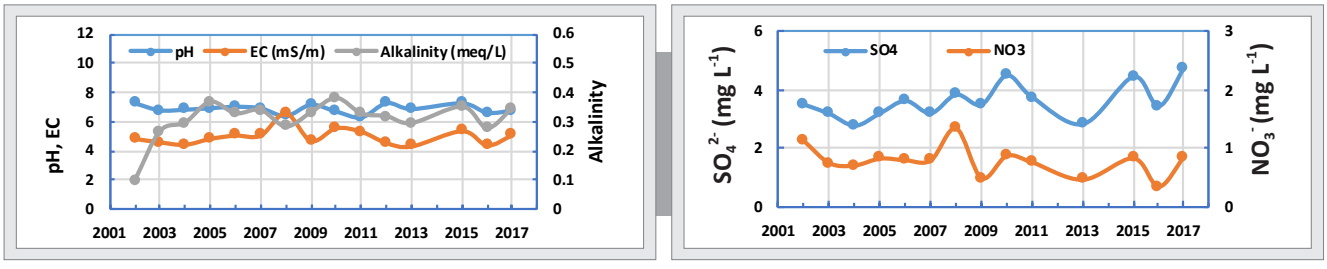
- SO_2 and NO_x are showing increasing trends.
- PM_{10} and $PM_{2.5}$ are almost stable for several years but exceeding WHO.

Wet Deposition



- pH is slightly acidic.
- nss-SO_4^{2-} and NO_3^- are showing increasing trends.

Inland Water



4. AWARENESS ACTIVITIES, RELEVANT POLICIES AND FUTURE PLAN

- Implementation of the National Program for Reducing Air and Environmental Pollution. It envisages 60 measures; among them, over 50 measures are focused on air pollution.
- A Master Plan for decreasing air pollution in Ulaanbaatar city was approved in 2018. The Government has approved a regulation to cut night-time electricity tariff for Gers district households during the cold period.
- The Government issued a resolution for a prohibition of raw coal usage in Ulaanbaatar city on 28 February 2018. The resolution's goal is to ban the usage of raw coal in Ulaanbaatar city.
- The processed briquette coal factory has been operated since November 2018. The factory is predicated to supply ~200,000 households in ger areas in central 6 districts of Ulaanbaatar city.
- The Government provides households with low power consumption products, incentives like reducing electricity costs to encourage citizens to use electric heating.
- The Government issued a resolution for tax-exemption for indoor filters and electric-saving heaters.
- The Government set up two centers for conducting a technical inspection of vehicles and 11 vehicles fully-equipped with mobile repair service equipment.
- Public transport vehicles were encouraged to shift to gas and diesel combined fuel consumption.
- 124 big public buses were equipped with gas and diesel fuel facilities; toxic fume filters were fitted in 1,523 cars, and 18 trolleybuses and duo buses were assembled for public service.
- Air quality monitoring data is released in real-time on the website. Weekly, monthly and seasonal reports on air quality are regularly published on the website.
- Telecasting/broadcasting of air pollution programmes shows on TV and radio.
- The Government is developing laws and legislations for liabilities of air and environmental pollution.
- The Government has plans to boost construction in ger areas and provide its residents with environmentally friendly, standard stoves.

Policies and Practices Concerning Air Pollution

The revised Law on Air of 2012 is a main legal instrument for air protection and pollution prevention, mitigation and control. The Government of Mongolia passed following laws and legislations for prevention and control of air pollution to environment and health:

- The Law on Environment Protection, 1995.
- The Law on Air, 1995.
- The Law on Environment Assessment, 1998.
- The Air Protection Programme, 1999.
- The Air Quality Management Unit, 2006.
- The Law on Payment, 2010.
- The Law on Air, 2012.
- National Program for Reducing Air and Environmental Pollution, 2017.

EANET Activities and Future Plan

- Regular monitoring of EANET parameters on the dry deposition, wet deposition, and inland water at designated monitoring sites.
- Participation in the QA/QC activities, including inter-laboratory comparison projects, namely, project on Wet Deposition, Dry Deposition, Soil Analysis, and Inland Aquatic Environment.
- Organizing awareness programmes on the EANET activities related to Wet Deposition, Dry Deposition, Soil Analysis, and Inland Aquatic Environment.
- Training of technicians.

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