FACTSHEET

EANET

ACID DEPOSITION MONITORING NETWORK IN EAST ASIA

MYANMAR

Policies and Practices Concerning Acid Deposition

1. CURRENT SITUATION AND PROGRESS

General Evaluation

The air quality of Myanmar is generally good. However, with rapid development, Myanmar has been experiencing a rise in air pollution in urban areas. Yangon and Mandalay are experiencing increased urbanization from rural-urban migration, and growing density as the urban population growth has been faster than spatial growth. The increasing number of vehicles is a matter of concern as vehicles are the main source of air pollution in urban regions of Myanmar. The yearly averaged concentrations of $PM_{2.5}$ observed at Mandalay monitoring station during 2015, 2016, and 2017, were 47 ($\mu g/m^3$), 33 ($\mu g/m^3$), and 37 ($\mu g/m^3$), respectively, which were about four times higher than the WHO guidelines of 10 $\mu g/m^3$. The level of SO_2 is showing a decreasing trend. Most values of pH throughout the years were between 6 and 7 hence the acid deposition is still not significant in the Yangon area. In addition, 16 rain sample collection stations were extended during 2019, located close to neighboring countries to monitor acid deposition due to transboundary haze pollution. Currently, a total of 41 rain sample collection stations are in operation to monitor acid deposition across Myanmar since 2003.

Generally, no negative impacts of acid deposition have been identified in Myanmar. Yangon/Mandalay City Development Committee monitored ambient air quality at 67 places across Yangon since 2015 for CO_2, CO, NO_2, NO, SO_2, CH_4, and PM. Air pollution measurements were also done in crowded areas, dense traffic areas, and near industrials zones in Yangon in September 2016 and November 2017. The levels of CO_2 and CH_4 were particularly high in areas of garbage dumping, ditches, and trees, while the CO level was high at intersections prone to traffic congestion. NO_2 and SO_2 were also found in the air while the level of PM was high near construction.

Main Pollution Sources and Trends

In Myanmar, in particular, in Yangon, the primary source of air pollution is traffic, diesel generators, construction, power plants, factories, burning of waste, and slash-and- burn agricultural practices. Air pollution peaks every year from January to April.

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

Air Pollutants	Average Time	NAAQS ($\mu g/m^3$)	WHO Guidelines ($\mu g/m^3$)
PM_{10}	24-hr	50	50
	1-yr	20	20
$PM_{2.5}$	24-hr	25	25
	1-yr	10	10
SO_2	10-min	900	-
	24-hr	20	20
NO_2	1-hr	200	200
	1-yr	40	40
O_3	8-hr	100	100

Myanmar adopted its national ambient air quality standards (NAAQS) similar to those of WHO guidelines.

EANET

UN environment programme

ACAP

Participation in EANET

Myanmar started participating in EANET in 2005. Following is the framework of institutional arrangement for implementing activities of EANET in the country:

- National Focal Point: Department of Meteorology and Hydrology, Ministry of Transport and Communications
- Scientific Advisory Committee Members: Department of Meteorology and Hydrology, Ministry of Transport and Communications
- National QA/QC Manager: Department of Meteorology and Hydrology, Ministry of Transport and Communications
- National Center: Department of Meteorology and Hydrology, Ministry of Transport and Communications

2. SITE INFORMATION

Wet deposition monitoring by the DMH began at one urban site in Yangon (Kaba-Aye) with the installation of a wet sampler in June 2007. In addition, Yangon began air quality monitoring with filter pack in November 2011 and $PM_{2.5}$ in March 2018 which belong to DMH. Moreover, $PM_{2.5}$ air quality monitoring that belongs to Environmental Conservation Department (ECD) was installed in April 2015.

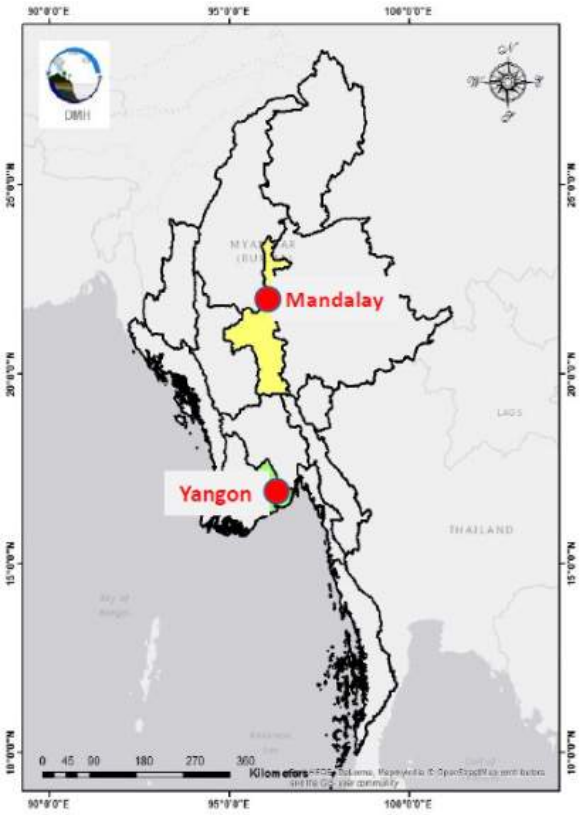
Monitoring Sites	Site Classification	Location			Parameters measured	
		Latitude	Longitude	Altitude (m)	Wet Dep.	Dry Dep.
Kaba-Aye, Yangon	Urban	16°51′53″N	96°09′13″E	21.7	✓	✓
ECD, Mandalay	Urban	21°54′46″N	96°03′51″E	70		✓

Monitoring Parameters

Monitoring Type	Parameters	Frequency
Wet Deposition	pH, EC, NH_4^+, Na^+, K^+, Ca^{2+}, Mg^{2+}, SO_4^{2-}, NO_3^-, Cl^-	Weekly
Dry Deposition	NH_4^+, Na^+, K^+, Ca^{2+}, Mg^{2+}, SO_4^{2-}, NO_3^-, Cl^-, SO_2, HNO_3, HCl, NH_3	Biweekly
	$PM_{2.5}$	Hourly

$PM_{2.5}$ Monitoring Site, Mandalay

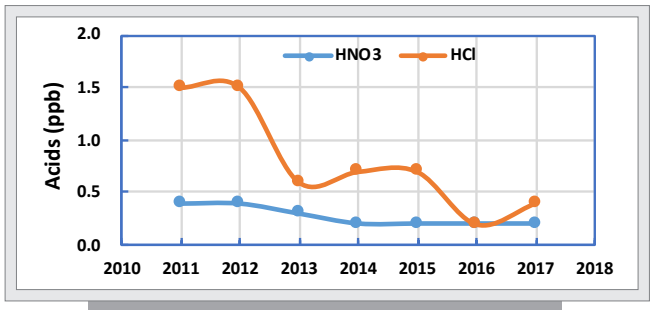
$PM_{2.5}$ Monitoring Site, Yangon

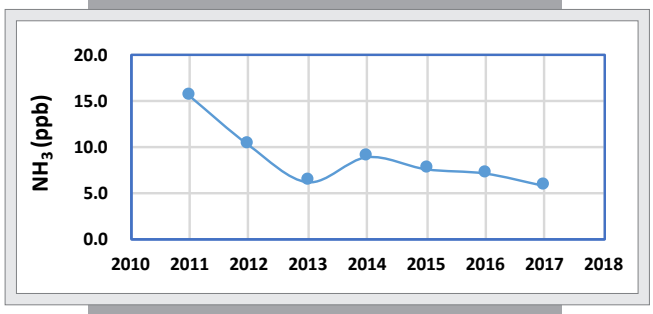


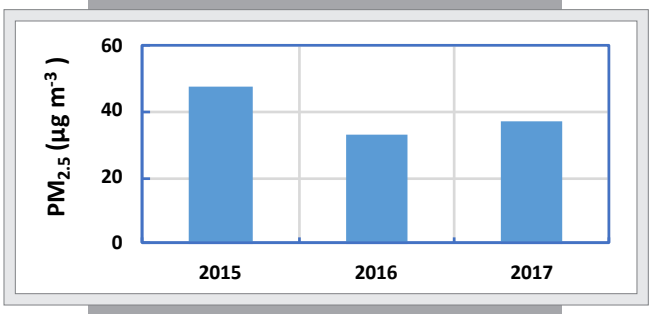
3. HIGHLIGHTS OF MONITORING RESULTS

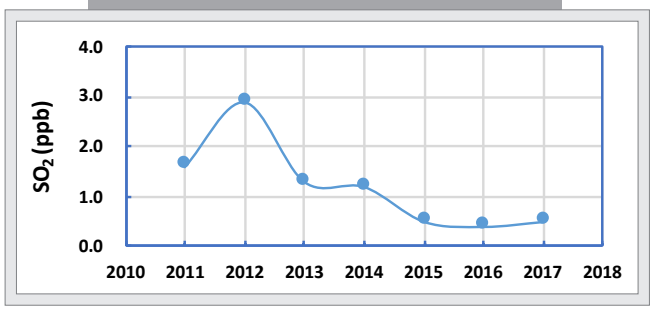
The following figures show the time-series trend of the annual average of important acid deposition parameters in the dry deposition and wet deposition of Myanmar.

Dry Deposition





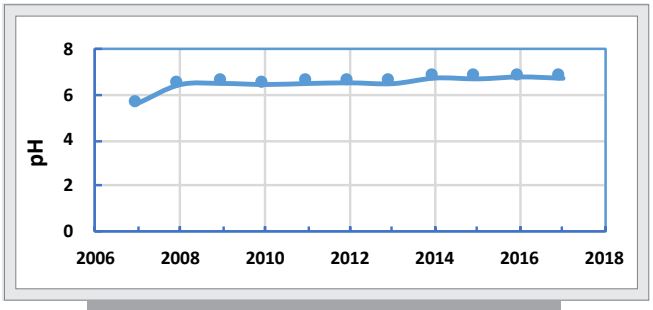


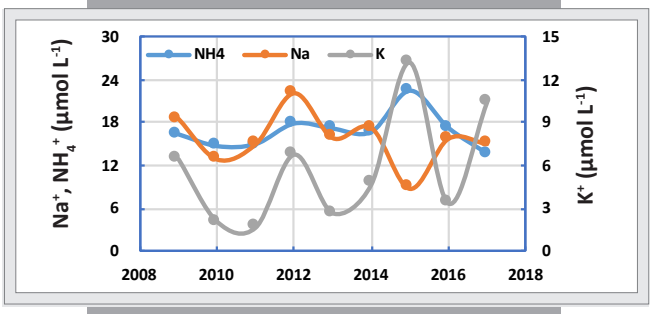


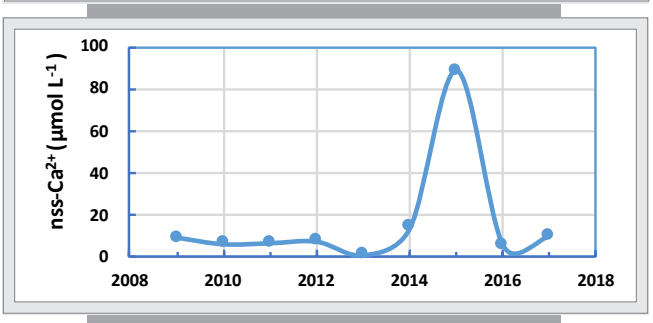
- SO_2, acids, $PM_{2.5}$, NH_3 are showing decreasing trend.

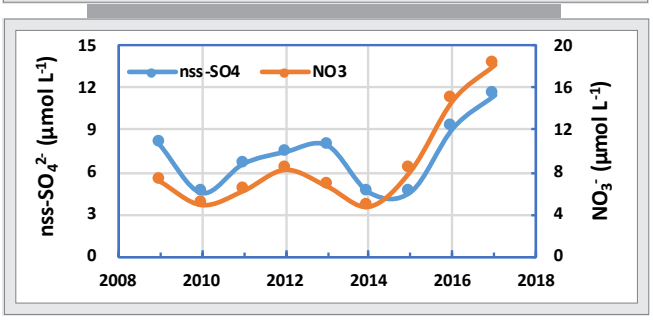
- The level of $PM_{2.5}$ is exceeding WHO guideline.

Wet Deposition









- pH values are almost neutral, so no acidity in wet deposition.

- Nss-SO_4^{2-} and NO_3^- are showing increasing trend.

4. AWARENESS ACTIVITIES, RELEVANT POLICIES AND FUTURE PLAN

- DMH published a brochure on acid deposition problems in Myanmar. The brochure has been distributed to schools, universities, libraries, governmental departments and NGOs, and other relevant and interested parties.
- Education programmes of Myanmar television, a talk on the causes and impacts of acid deposition, were broadcasted.
- Poster exhibitions, publishing articles in newspapers and journals, and education on acid deposition for public servants to sensitize them to the relevance and specifics of the problem.
- Development of policies, guidelines and planning for environmental pollution control, natural resources management and environmental sustainability, action plan for transboundary haze pollution control in Myanmar.
- Capacity development and international cooperation.
- People's awareness and participation events will be held in 2020.

Policies and Practices Concerning Air Pollution

Myanmar has the following environmental laws and an institutional framework for environmental and air quality management in the country.

- Environmental Policy (1994).
- Myanmar Agenda 21 (1997).
- National Sustainable Development Strategy NSDS (2009).
  - Initial National Communication-INC (2012).
  - National Adaptation Programme of Action - NAPA (2012).
- Environmental Conservation Law (2012).
- Environmental Conservation Rules (2014).
- Intended National Determined Contribution (INDC) (2015).
- EIA procedures (2015).
- Environmental Quality (Emission) Guideline (2015).
- National Environmental Policy (2019).

EANET Activities and Future Plan

- Regular monitoring of EANET parameters about dry deposition and wet deposition at designated monitoring sites.
- Participation in the QA/QC activities, including inter-laboratory comparison projects.
- Annual maintenance, calibration work, and visit to monitoring sites.
- Hands-on training on monitoring and analysis of acid deposition parameters.
- Upgrade the National Monitoring Plan.
- Enhance local network cooperation.
- Enhance capacity building, research activities and strengthening technology in the area of acid deposition and ambient air quality.
- Extend air quality monitoring ($PM_{2.5}$) in countrywide.

National Focal Point

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