Monitoring at Ya
Myanmar

Dr.Yuba's presentation
DMH and MKI
implemented these parts.

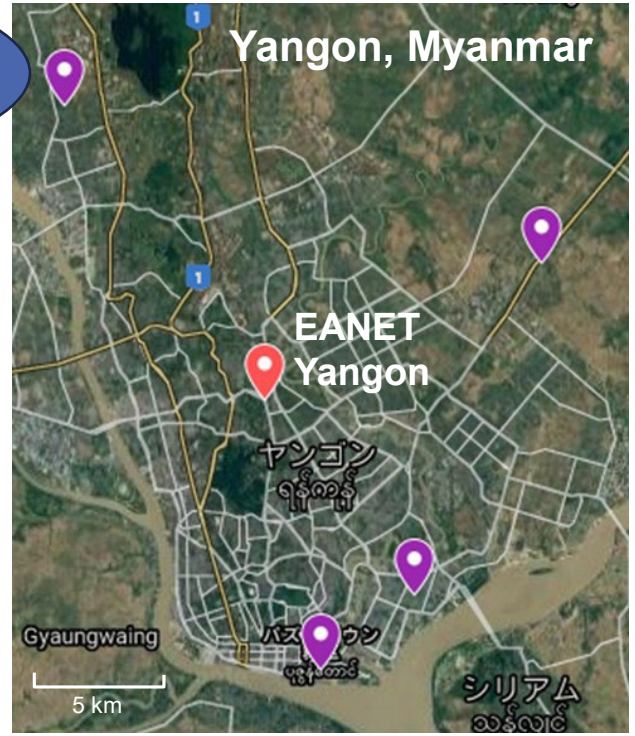
Target: PM2.5, O_3, NO_2, meteorological parameters (WS, WD, Temp, RH)

GBiot-FH0

With internet connection

Haz Scanner

Parallel monitoring was conducted at EANET Yangon, LCS was relocated in five sites inside the city for small scale HAQMN.

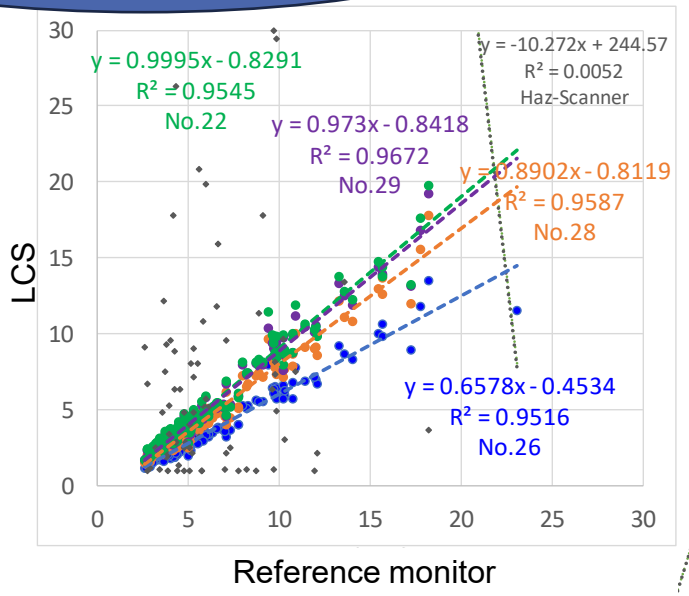


Station name	Management organization
EANET Yangon	Department of Meteorology and Hydrology (DMH), Ministry of Transport and Communication (MOTC)
Central Yangon	
Shwe Pyi Thar	Environmental Conservation Department (ECD), Ministry of Natural Resources and Environmental Conservation (MONREC)
Ywar Thar Gui	
ECD Staff Housing	

Results from parallel monitoring

Dr.Yuba's presentation
DMH and MKI
implemented these parts.

Parallel monitoring tests were conducted at EANET station of Yangon, Myanmar (rain and dry seasons) and Hoa Binh, Vietnam (dry season).



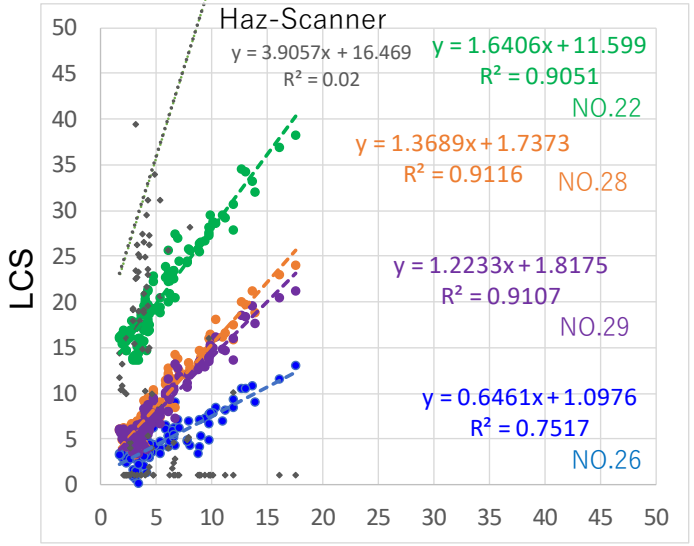
PM2.5

Comparison of PM2.5 concentration in rain season of Myanmar

Some LCSs show the good correlation with reference level monitor.

Ozone

Comparison of O_3 concentration in rain season of Myanmar



Background about Myanmar Context

<Standards>

Myanmar: There is **no ambient air quality standard** (only Guideline value) and no technical standards for the mo

Vietnam: QCVN 05 2009-> 2013-> (latest) 2023

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM

QCVN 05:2023/BTNMT

QUY CHUẨN KỸ THUẬT QUỐC GIA
VỀ CHẤT LƯỢNG KHÔNG KHÍ

National technical regulation on Air Quality

HÀ NỘI - 2023

<Reference Station>

Myanmar: Currently, only 4 reference

-2 Horiba AQMS (MKI & Regional ECD),
-DKK TOA (EANET Station), and
- Met One BAM (US Embassy)

Vietnam: Many reference Station (s)

The concept of HAQMN is good for all countries, and **a very suitable idea for Myanmar's situation.**

Challenges/Issues & Countermeasures (1/2)

Item	Challenges/ Issues	Countermeasures
1) Measurement data of each device		
GBiot-FH0	PM2.5 became lower through the monitoring. O3 was sometimes at the upper limit	• Due to contamination of the light-receiving area or the air inlet area, so clean regularly. • Correct using the Horiba AQMS results
Haz-Scanner	It does not correlate with Horiba AQMS and has accuracy issues (Calibration certification in the U.S. manufacturer)	• Since the cause is unknown, inquire with the manufacturer about the cause and countermeasures.
Horiba AQMS (O_3)	The measured values were different from the GBiot-FH0 fluctuations (higher concentrations at night)	O3 meters are calibrated on a regular basis. **Local distributor can not calibrate, and MKI did via a remote connection with ACAP (Aug. 2023)**
2) Measurement devices and accessories		
Power supply	During the dry season, there were frequent power outages	The power supply configuration should be capable of providing a stable power supply (battery + inverter)
Connections between devices	he connection between GBiot-FH0 and the router was interrupted sometimes.	Difficult to countermeasure (situation in Myanmar) ⇒Restart GBiot-FH0 and router when disconnected ⇒Confirm data in the logger
Others	A large number of insects entered in GBiot-FH0, resulting in a loss of measurement accuracy.	• Insect infestation was prevented by covering the interstices. **In June-July 2023, the main unit of GBiot-FH0 was overhauled.**

Challenges/Issues & Countermeasures (2/2)

Item	Challenges/ Issues	Countermeasures
3) Human resources		
Government	The installation of the measurement equipment required time-consuming procedures within the government agency, causing delays for survey	• Request national/local government agencies to understand and cooperate and provide support for the procedures.
local members (Supplier, and monitoring team)	**Horiba AQMS is maintained by a local supplier, but the local supplier's experience is totally insufficient.**	• Request smooth communication between the local supplier and Horiba Singapore. • Contact Horiba Japan in some cases.
	Due to the inexperience of the local personnel, the operation and management of each piece of equipment were sometimes inadequate.	Provide capacity building support so that in the future local personnel alone will be able to operate, manage, and process data.
4) Others		
Safety and Crime Prevention	Select the location of the equipment, as it was necessary to pay attention to **safety and security in addition to a stable power supply.**	Necessary to have the government agencies' understanding and cooperation. Confirmation of the detailed status of the installation site.
Political Situation	**Import restrictions made it difficult to obtain standard gases for calibrating the Horiba AQMS**	Obtained the standard gas **one year and six months after the order**. Upon calibration, **new problems were identified, such as the strength of the UV lamps, and MKI are continuing to address them.**