

The Ninetieth Scientific Advisory Committee Meeting  
of the Acid Deposition Monitoring Network in East Asia  
8-10 October 2019, Siem Reap, Cambodia

## **National Monitoring Plans (NMPs) of the Participating Countries**

### **Network Center for EANET**

#### **I. Background**

1. National Monitoring Plan (NMP) includes the information on monitoring sites, monitoring methods, monitoring frequency etc. in participating countries. This information is crucial for QA/QC activities in the EANET. First summarization of the NMP was prepared in November 2001. The NMP is required to be submitted when the participating countries submit its annual monitoring data to the Network Center (NC). Additionally, when the participating countries make some revision, the revised NMP shall be submitted to the NC as soon as possible. The NMP has been prepared using the template which was provided in the Preparatory phase of the EANET monitoring.
2. The NMP shall be reviewed every year and shall be revised by each participating country, if necessary, because
  - i) The EANET activities shall be carried out according to the NMP; and
  - ii) Suitability of the completed activities to the NMP needs to be checked every year.  
Even if there is no point of revision, the existing state of the EANET activities can be re-confirmed periodically and this state should be reported to the NC.

#### **II. Preparation of NMP based on the revised template**

3. Revising the unfavorable description, the electronic template ([https://www.eanet.asia/wp-content/uploads/2019/04/QAQC\\_Guidebook\\_Appendix.doc](https://www.eanet.asia/wp-content/uploads/2019/04/QAQC_Guidebook_Appendix.doc)) of the NMP were newly prepared and distributed to the National QA/QC managers as a part of the QA/QC Guidebook 2016 ([https://www.eanet.asia/wp-content/uploads/2019/04/QAQC\\_Guidebook2016.pdf](https://www.eanet.asia/wp-content/uploads/2019/04/QAQC_Guidebook2016.pdf)). The NMP needs to be reviewed and/or revised for the implementation of monitoring by the National QA/QC manager in each participating country.
4. The NMPs have been introduced in the STM meeting by the participating countries. The outcome of the STM meeting should be reflected to the secondary revision process for the draft with communication between the NC and the National QA/QC managers in the participating countries. After report at the SAC meeting, the NC prepares the compiled NMPs submitted by the participating countries, and site information will be updated on the EANET website as appropriate. The participating countries implement their EANET monitoring activities in accordance with their own NMP for each year.

#### **III. Development of NMP in 2019**

5. Based on the discussion and confirmation in and after the STM20 meeting held in Kuala Lumpur, Malaysia, the NMPs in 2019 were finalized. Overview of the NMPs in 2019 is shown

in Attachment 1 and the list of sites and monitoring items are shown in Attachment 2. The monitoring data in 2019 will be validated referring the NMP 2019 of each participating country in EANET.

6. By the NMPs, it is clarified that number of EANET monitoring site has increased comparing with previous year of 2018 as summarized in the Table 1. By nomination of domestic site as well as installation of monitoring instruments into existing monitoring sites, further increase of monitoring site is expected.

Table1 Number of EANET sites in 2018 and 2019

[New sites and monitoring items] Lijiang and Wuzhishan (wet, SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>), Jembrana (wet), Lombok (wet), Phnon Penh (O<sub>3</sub>), Bandung (O<sub>3</sub>), Vientiane (PM<sub>2.5</sub>)

Year	Wet	Dry (Air concentration)							IAE	S&V	CAT
			SO <sub>2</sub>	O <sub>3</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PMC			
2018	58	52	51	25	31	26	23	44	18	21	2
2019	62	54	53	27	33	28	25	44	18	21	2

7. Recent topics of NMPs in the participating countries are shown below.

- Cambodia
  - Wet deposition monitoring in Siem Reap is included in the NMP.
  - Ozone monitoring started in Phnon Peng in August 2019.
- China
  - Two monitoring sites, Wuzhishan and Lijiang, were nominated newly as the EANET sites.
  - Those sites are located in Hainan and Yunan provinces, respectively.
  - Wet deposition, gas (SO<sub>2</sub> and NO<sub>x</sub>), and aerosol (PM<sub>10</sub>) concentrations have been monitored in both sites.
- Indonesia
  - There is a plan to nominate one site from each four big island to EANET.
  - Jembrana in Bali island and Lombok in Nusa Tenggara were nominated in the NMP of 2019.
  - Mempawah in Kalimantan island and Jayapura in Papua island will be nominated in 2020.
- Japan
  - Two wet and dry deposition monitoring sites were changed, namely, from Tappi to Niigata-Maki, from Banryu to Tsushima.
  - Soil and vegetation monitoring site was changed from Banryu to Sekido-san, Horyu-san.
  - Inland aquatic environment monitoring site was changed from Banryu to Futago-ike.
- Lao PDR
  - PM<sub>2.5</sub> monitoring was started from 2018 supporting by PMTT project.
  - Ambient air quality in each province has been monitored by mobile monitoring system.
- Malaysia

- There is a plan to expand the Filter Pack monitoring network from 3 sites to 7 sites (2021-2025 Plan).
- Migration of Particulate Matter measurement from PM<sub>10</sub> to PM<sub>2.5</sub> at 4 locations (2021-2025 Plan).
- Mongolia
  - CLEM (Central Laboratory of Environment and Metrology) has operated eleven automatic air monitoring stations in Ulaanbaatar.
- Myanmar
  - PM<sub>2.5</sub> monitoring was started in Yangon in 2018 supporting by PMTT Project.
  - As the National Monitoring Center for EANET, DMH is expected to enhance on local network cooperation with some governmental agencies such as Yangon/Mandalay City Development Committee, Environmental Conservation Department, Department of Health, Department of Atomic Energy, Irrigation Department, Water Resources Utilization Department etc., which monitor water and air qualities.
- Philippines
  - Catchment monitoring in La Messa Watershed has started and the data will be submitted officially soon.
  - Soil samples are now analyzed by the EMB-CO Laboratory due to retirement of the UPLB researcher July 2019.
  - PM<sub>2.5</sub> monitor in MM site will be transferred to La Trinidad Strawberry Valley Hotel in La Trinidad, Benguet.
- R. of Korea
  - Domestic automatic PM<sub>2.5</sub> monitoring is operated in 165 sites over country.
  - Domestic acid deposition monitoring is performed in 42 sites over country.
- Russia
  - Limnological Institute has participated in the Inter-laboratory comparison project not only by EANET but also by WMO-GAW and EMEP.
- Thailand
  - Kanchanaburi station was newly established in 2017.
- Viet Nam
  - Increasing number of EANET sites, strengthening for meteorological parameter observation, model simulation for transportation and deposition of air pollutants, and promotion of ozone and PM<sub>2.5</sub> monitoring are under consideration as future plan.

**Attachment 1**

**Overview of the National Monitoring Plan 2019**

Underlined descriptions show revised information

Country	Items	Monitoring sites	Classification	Monitoring interval	Measurement Parameters	Remarks (Start time)	Available Data(2018)	
<Cambodia>	Wet	Phnom Penh	Urban	weekly	All required items	JAN 2005		
		Siem Reap	Urban	weekly	All required items	OCT 2011		
	Dry	Phnom Penh	Urban	AT(hourly) FP(biweekly)	PM <sub>2.5</sub> , <u>O<sub>3</sub>(AUG 2019-)</u> SO <sub>2</sub> ,HNO <sub>3</sub> ,HCL,NH <sub>3</sub> ,PMC	FEB 2010	✓	
		Inland	Sras Srang Lake	Remote	2 times/y	Water quality	2012	
<China>	Wet	Chongqing -Haifu	Urban	daily	All required items + F <sup>-</sup>	JAN 2008	✓	
		Chongqing -Jinyunshan	Rural	daily	All required items + F <sup>-</sup>	APR 1999	✓	
		Xi'an -Shizhan	Urban	daily	All required items	APR 1999	✓	
		Xi'an-Jiwozi	Remote	daily	All required items	APR 1999	✓	
		Xiamen-Hongwen	Urban	daily	All required items + F <sup>-</sup>	APR 1999	✓	
		Xiamen-Xiaoping	Remote	daily	All required items + F <sup>-</sup>	APR 1999	✓	
		Zhuhai-Xiangzhou	Urban	daily	All required items + F <sup>-</sup>	APR 1999	✓	
		Zhuhai-Zhuxiandong	Urban	daily	All required items + F <sup>-</sup>	DEC 1999	✓	
		<u>Wuzhishan-Wuzhishan</u>	<u>Remote</u>	<u>daily</u>	<u>All required items + F<sup>-</sup></u>	<u>JAN 2019</u>		
	<u>Lijang-Lijang</u>	<u>Remote</u>	<u>daily</u>	<u>All required items + F<sup>-</sup></u>	<u>JAN 2019</u>			
	Dry	Chongqing -Jinyunshan	Rural	AT(Daily)	SO <sub>2</sub> , NO, NO <sub>x</sub> , PM <sub>10</sub>	JAN 2001	✓	
		Xiamen-Hongwen	Urban	AT(Daily) FP	SO <sub>2</sub> ,NO <sub>2</sub> ,PM <sub>10</sub> , HNO <sub>3</sub> ,HCL,NH <sub>3</sub> ,PMC	JAN 2000	✓	
		Zhuhai-Haibin-Park	Urban	AT(Daily)	SO <sub>2</sub> ,NO <sub>2</sub> , PM <sub>10</sub>	2014	✓	
		<u>Wuzhishan-Wuzhishan</u>	<u>Remote</u>	<u>AT(Daily)</u>	<u>SO<sub>2</sub>,NO<sub>2</sub>, PM<sub>10</sub></u>	<u>JAN 2019</u>		
		<u>Lijang-Lijang</u>	<u>Remote</u>	<u>AT(Daily)</u>	<u>SO<sub>2</sub>,NO<sub>2</sub>, PM<sub>10</sub></u>	<u>JAN 2019</u>		
	Soil & vegetation	Chongqing -Jinyunshan	Rural	Every 3 years	Tree decline, Abnormalities of leaves and branches(Ions etc.in soil)		✓	
		Xi'an-Jiwozi	Remote	Every 3 years	Tree decline, Abnormalities of leaves and branches(Ions etc.in soil)		✓	
		Xiamen-Xiaoping	Remote	Every 3 years	Tree decline, Abnormalities of leaves and branches(Ions etc.in soil)		✓	
		Zhuhai-Zhuxiandong	Urban	Every 3 years	Tree decline, Abnormalities of leaves and branches(Ions etc.in soil)			
	Inland	Chongqing-Jinyunshan Lake	Rural	4 times/y	Water quality	2001	✓	
		Xi'an-Jiwozi River	Remote	4 times/y	Water quality	2001	✓	
		Xiamen-Xiaoping Dam	Remote	4 times/y	Water quality	2001	✓	
		Zhuhai-Zhuxiandong Stream	Urban	4 times/y	Water quality	2004	✓	
	<Indonesia>	Wet	Jakarta	Urban	weekly	All required items	APR 1998	✓
			Serpong	Rural	daily	All required items	APR 1998	✓
			Kototabang	Remote	weekly	All required items	APR 1998	✓
			Bandung	Urban	daily	All required items	JAN 1999	✓
			Maros	Rural	weekly	All required items	JAN 2008	✓
<u>Jembrana</u>			<u>Rural</u>	<u>weekly</u>	<u>All required items</u>	<u>JAN 2019</u>		
<u>Lombok</u>		<u>Rural</u>	<u>weekly</u>	<u>All required items</u>	<u>JAN 2019</u>			
Dry		Serpong	Rural	FP(bi-weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCL,NH <sub>3</sub> ,PMC	JUL 2001	✓	
		Kototabang	Remote	PS	SO <sub>2</sub> ,NO <sub>2</sub>	JAN 2007	✓	
		Jakarta	Urban	FP(bi-weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCL,NH <sub>3</sub> ,PMC	2014		
		Jakarta	Urban	PS	SO <sub>2</sub> ,NO <sub>2</sub>	2007	✓	
		Jakarta	Urban	AT(hourly)	PM <sub>2.5</sub>	2017	✓	
		Bandung	Urban	FP(bi-weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCL,NH <sub>3</sub> ,PMC	2014	✓	
		Bandung	Urban	PS	NO <sub>2</sub>	2008	✓	
<u>Bandung</u>		<u>Urban</u>	<u>AT(hourly)</u>	<u>O<sub>3</sub></u>		✓		
Soil and vegetation		Darmaga-Bogor	Rural	once/5 years	Decline, K etc. in leaves & ions in soil	2002		
Inland		Patenggang Lake	Rural	4 times/y	Water quality	2001	✓	
		Gunung Lake	Rural	4 times/y	Water quality	2007	✓	

<Japan>	Wet	Rishiri	Remote	daily	All required items	APR 1998	✓	
		Ochiishi	Remote	daily	All required items	APR 2003	✓	
		Tappi(-MAR 2019)	Remote	daily	All required items	APR 1998	✓	
		Niigata-Maki(APR 2019-)	Rural	daily	All required items	APR 2019		
		Ogasawara	Remote	daily	All required items	MAY 1999	✓	
		Sado-seki	Remote	daily	All required items + HCO <sub>3</sub> <sup>-</sup>	APR 1999	✓	
		Happo	Remote	daily	All required items	APR 1998	✓	
		OkI	Remote	daily	All required items	APR 1998	✓	
		Yusuhara	Remote	daily	All required items + F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup>	DEC 1999	✓	
		Tsushima(APR 2019-)	Remote	daily	All required items	APR 2019		
		Hedo	Remote	daily	All required items	DEC 1999	✓	
		Ijira	Rural	weekly	All required items	JUN 1999	✓	
		Banryu(-MAR 2019)	Urban	weekly	All required items +F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup>	MAY 1999	✓	
	Tokyo	Urban	daily	All required items F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup>	APR 2007	✓		
	Dry	Rishiri	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> , HCl,NH <sub>3</sub> ,PMC	AT FP JAN 2002	✓	
		Ochiishi	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2008	✓	
		Tappi(-MAR 2019)	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Niigata-Maki(APR 2019-)	Rural	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	AT(PM)&FP: 2020		
		Ogasawara	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Sado-seki	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> , HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Happo	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		OkI	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> , HCl,NH <sub>3</sub> ,PMC	FP: 2002	✓	
		Tsushima(APR 2019-)	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	AT(exPM&O <sub>3</sub> )&FP: 2020		
		Yusuhara	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Hedo	Remote	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Ijira	Rural	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Banryu(-MAR 2019)	Urban	AT(hourly) FP (biweekly)	SO <sub>2</sub> ,NO,NO <sub>x</sub> *,O <sub>3</sub> ,PM <sub>10/2.5</sub> HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FP: 2003	✓	
		Tokyo	Urban	FP (biweekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,NH <sub>3</sub> , PMC	FP: 2007	✓	
		Soil and vegetation	Ijira	Rural	Once in 5 years	All required items		✓
			Sekido-san, Horyu-san(APR 2019-)	Rural	Once in 5 years	All required items	2019	
			Banryu(-MAR 2019)	Urban	Once in 5 years	All required items		✓
		Inland	Ijira Lake	Rural	4 times/y	Water quality	2001	✓
			Futago-ike(APR 2019-)	Remote	4 times/y	Water quality	2019	
	Banryu Lake(-MAR 2019)		Urban	4 times/y	Water quality	2001	✓	
	Catchment-scale	Ijira	Rural	1 times/y	Input, output, biochemical process		✓	
	<Lao PDR>	Wet	Vientiane	Urban	daily	All required items	OCT 2003	✓
		Dry	Vientiane	Urban	FP(weekly) AT(hourly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> , PMC NO,NO <sub>2</sub> ,PM <sub>10</sub> , PM <sub>2.5</sub>		✓
			Inland	Nam Houm Lake	Urban	4 times/y	Water quality	SEP 2009

<Malaysia>	Wet	Petaling Jaya	Urban	weekly	All required items+Organic acid	APR 1998	✓
		Tanah Rata	Rural	weekly	All required items+Organic acid	JAN 1999	✓
		Danum Valley	Remote	weekly	All required items+Organic acid	JAN 2006	✓
		Kuching	Urban	weekly	All required items+Organic acid		✓
	Dry	Petaling Jaya	Urban	FP(weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> , PMC		✓
		Tanah Rata	Rural	FP(weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> , PMC	FP: 2001	✓
		Danum Valley	Remote	FP(biweekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> , PMC	FP: 2006	✓
	Soil and vegetation	Pasoh Reserve Forest	Urban	Every 3-5 years	Tree decline, description tree & ions in soil etc.	2014	✓
		Universiti Putra Malaysia Bintulu Rehabilitated Forest	Urban	Every 3-5 years	Tree decline, description tree & ions in soil etc.	2009	
	Inland	Semenyih Dam	Urban	4 times/y	Water quality	FEB 2005	
Tembaling River		Remote	4 times/y	Water quality	MAR 2007		
<Mongolia>	Wet	Ulaanbaatar	Urban	daily	All required items	AUG 1998	✓
		Terej	Remote	daily	All required items	SEP 1998	✓
	Dry	Ulaanbaatar	Urban	AT+ FP(biweekly)	SO <sub>2</sub> ,NO,NO <sub>2</sub> ,O <sub>3</sub> ,PM <sub>10/2.5</sub> , HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	2014	✓
		Terej	Remote	FP(biweekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		✓
	Soil and vegetation	Ulaanbaatar(Bogdkhan mountain)	Urban/Ecolog	Every 3-5 years	PH(H <sub>2</sub> O),pH(KCl),Exchangeable acidity, Tree decline, description tree	2002	
	Inland	Terej River	Remote	4-5 times/y	Water quality	2002	✓
<Myanmar>	Wet	Yangon	Urban	weekly	All required items	JUN 2007	✓
	Dry	Yangon	Urban	FP(biweekly), AT	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> , PMC PM <sub>2.5</sub>	NOV 2011 MAR 2018	✓
		Mandalay	Urban	AT	PM <sub>2.5</sub>	MAY 2015	✓
<Philippines>	Wet	Metro Manila	Urban	weekly	All required items	APR 1999	
		Los Banos	Rural	weekly	All required items	APR 1999	
		Mt. St. Tomas	Remote	weekly	All required items	OCT 2006	
	Dry	Metro Manila	Urban	AT+ FP(weekly)	SO <sub>2</sub> ,NO,NO <sub>2</sub> ,O <sub>3</sub> ,PM <sub>10/2.5</sub> , SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	2015	✓
		Los Banos	Rural	FP(weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		
		Mt. St. Tomas	Remote	FP(weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	OCT 2006	
	Soil and vegetation	Los Banos	Rural	Once in 3 years	(Tree decline, description tree & ions in soil etc.)	2001	
		UP Quezon- Laguna Land Grant	Rural	Once in 3 years	(Tree decline, description tree & ions in soil etc.)		
		Metro Manila(La Mesa Dam Watershed)	Urban	Once in 3 years	(Tree decline, description tree & ions in soil etc.)	NOV 2007	
		Boneco Long Term Ecological Research Site	Remote	Once in 3 years	(Tree decline, description tree & ions in soil etc.)	APR 2008	
	Inland	Pandin Lake	Rural	4 times/y	Water quality	2004	
		Ambulalakao Lake	Remote	4 times/y	Water quality	2005	
Catchment-scale	La-Mesa Watershed	Urban	1 times/y	Input, output, biochemical process			
<Republic of Korea>	Wet	Kanghwa	Rural	daily	All required items	MAR 1999	
		Cheju(Kosan)	Remote	daily	All required items	APR 1999	
		Imsil	Rural	daily	All required items	JAN 2001	
	Dry	Kanghwa	Rural	AT + FP(5 days a month)	SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , PM <sub>10/2.5</sub> , Ions in PM <sub>2.5</sub>	2001	
		Cheju(Kosan)	Remote	AT + FP(5 days a month)	SO <sub>2</sub> , NO <sub>2</sub> , O <sub>3</sub> , PM <sub>10/2.5</sub> , Ions in PM <sub>2.5</sub>	2001	
		Imsil	Rural	AT + FP(5 days a month)	SO <sub>2</sub> , O <sub>3</sub> , PM <sub>10</sub> , Ions in PM <sub>2.5</sub>	2001	
	Soil and vegetation	Imsil(Mt.Naejang)	Rural	Every 3 years	(Tree decline, description tree & ions in soil)	2001	

<Russia>	Wet	Mondy	Remote	daily	All required items(+F., NO <sub>2</sub> , Br, HCO <sub>3</sub> )	MAY 1999		
		Listvyanka	Rural	daily	All required items(+F., NO <sub>2</sub> , Br, HCO <sub>3</sub> )	JAN 2000	✓	
		Primorskaya	Rural	daily	All required items	FEB 2002	✓	
		Irkutsk	Urban	daily	All required items(+F., NO <sub>2</sub> , Br, HCO <sub>3</sub> )	JAN 2001	✓	
	Dry	Mondy	Remote	AT(hourly)+ FP(biweekly) +PS	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC O <sub>3</sub>	2001 2016	✓	
		Listvyanka	Rural	FP(biweekly) +PS	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC O <sub>3</sub> , SO <sub>2</sub> , NO <sub>x</sub>	2001	✓	
		Primorskaya	Rural	FP(biweekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	2001	✓	
		Irkutsk	Urban	FP(biweekly) + PS	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC O <sub>3</sub>	2001 2016	✓	
	Soil and vegetation	Mondy	Remote	Once/3-5 years	Tree decline, description tree & ions in soil	2001		
		Listvyanka (Bolshie Koty)	Rural	Once/3-5 years	Tree decline, description tree & ions in soil	2001		
		Irkutsk	Urban	Once/3-5 years	Tree decline, description tree & ions in soil	2001		
		Primorskaya	Rural	Once/3-5 years	Tree decline, description tree & ions in soil	2002		
	Inland	Pereemnaya River	Rural	4 times/y	Water quality	2004	✓	
		Komarovka River	Rural	5 times/y	Water quality	2005	✓	
	<Thailand>	Wet	Bangkok	Urban	daily	All required items+Organic acid, Phosphate	APR 1999	✓
			Samutprakarn	Urban	daily	All required items+Organic acid, Phosphate	JAN 2000	✓
Patumthani			Rural	daily	All required items+Organic acid, Phosphate	MAR 1999	✓	
Khanchnaburi (Vachiralongkorn Dam)			Remote	daily	All required items+Organic acid, Phosphate	APR 1999	✓	
Chiang Mai(Mae Hia)			Rural	daily	All required items+Organic acid, Phosphate	JAN 2001	✓	
Sakaerat(Nakhon Ratchasima)			Rural	daily	All required items+Organic acid, Phosphate	JAN 2006	✓	
Dry		Bangkok	Urban	AT(hourly,Daily)+ FP(10 days)	NO,NO <sub>2</sub> ,O <sub>3</sub> ,PM <sub>10</sub> ,PM <sub>2.5</sub> , HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		✓	
		Samutprakarn	Urban	AT	SO <sub>2</sub> ,NO,NO <sub>2</sub> ,O <sub>3</sub> ,PM <sub>10</sub> ,PM <sub>2.5</sub>		✓	
		Patumthani	Rural	FP	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl, NH <sub>3</sub> ,PMC			
		Khanchnaburi (Vachiralongkorn Dam)	Remote	AT+ FP(10 days)	SO <sub>2</sub> ,NO,NO <sub>2</sub> ,O <sub>3</sub> ,PM <sub>10</sub> , HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		✓	
		Chiang Mai(Mae Hia)	Rural	FP(10 days)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl, NH <sub>3</sub> ,PMC		✓	
		Chiang Mai (Chang Phueak)	Urban	AT(hourly,Daily)	SO <sub>2</sub> ,NO,NO <sub>2</sub> ,PM <sub>10</sub> ,PM <sub>2.5</sub> ,O <sub>3</sub>		✓	
		Chiang Mai (Si Phum)	Urban	AT(hourly,Daily)	SO <sub>2</sub> ,NO,NO <sub>2</sub> ,PM <sub>10</sub> ,PM <sub>2.5</sub> ,O <sub>3</sub>		✓	
		Sakaerat	Rural	FP(10 days)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	JAN 2006	✓	
Soil and vegetation		Vachiralongkorn Dam	Remote	Once/3-5 years	Tree decline, description of trees, pH & ions in soil			
		Vachiralongkorn Puye	Remote	Once/3-5 years	Tree decline, description of trees, pH & ions in soil			
Inland	Vachiralongkorn Dam	Remote	4 times/y	Water quality		✓		

<Viet Nam>	Wet	Hanoi	Urban	weekly	All required items + F <sup>-</sup>	AUG 1999	✓
		Hoa Binh	Rural	weekly	All required items + F <sup>-</sup>	AUG 1999	✓
		Cuc Phuong	Remote	weekly	All required items + F <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup>	JAN 2010	✓
		Da Nang	Urban	weekly	All required items+HCO <sub>3</sub> <sup>-</sup>	JAN 2010	✓
		Can Tho	Rural	weekly	All required items + F <sup>-</sup>	APR 2014	✓
		Ho Chi Minh	Urban	weekly	All required items + F <sup>-</sup>	JAN 2014	✓
		Yen Bai	Rural	weekly	All required items + F <sup>-</sup>	MAY 2015	✓
	Dry	Hanoi	Urban	FP(weekly)	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		✓
		Hoa Binh	Rural	AT(hourly) FP(weekly)	PM2.5 SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	FEB 2015	✓
		Can Tho	Rural	FP	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		✓
		Ho Chi Minh	Urban	FP	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC		✓
		Yen Bai	Rural	FP	SO <sub>2</sub> ,HNO <sub>3</sub> ,HCl,NH <sub>3</sub> ,PMC	MAY 2015	✓
	Soil and vegetation	Cuc Phuong	Rural	Once/3-5 years	Tree decline, description tree & ions in soil		
	Inland	Hoa Binh Reservoir	Rural	4 times/y	Water quality	1999	✓

PMC; Particulate matter components

PS; Passive sampler



**Attachment 2**

**List of sites and monitoring items**

Underlined descriptions show new information

Table 1. Wet Deposition Monitoring

Country	Monitoring sites	Classification	Monitoring interval	Mandatory items:										Optional items:	Meteorology	
				pH	EC	SO <sub>4</sub> <sup>2-</sup>	NO <sub>3</sub> <sup>-</sup>	Cl <sup>-</sup>	Na <sup>+</sup>	K <sup>+</sup>	Ca <sup>2+</sup>	Mg <sup>2+</sup>	NH <sub>4</sub> <sup>+</sup>			
<Cambodia>	Phnom Penh	Urban	weekly	x	x	x	x	x	x	x	x	x	x			
	Siem Reap	Urban	weekly	x	x	x	x	x	x	x	x	x	x			
<China>	[Chongqing]															
	Haifu	Urban	daily	x	x	x	x	x	x	x	x	x	x	F	x	
	Jinyunshan	Rural	daily	x	x	x	x	x	x	x	x	x	x	F	x	
	[Xi'an]															
	Shizhan	Urban	daily	x	x	x	x	x	x	x	x	x	x		x	
	Jivozi	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	[Xiamen]															
	Hongwen	Urban	daily	x	x	x	x	x	x	x	x	x	x	F	x	
	Xiaoping	Remote	daily	x	x	x	x	x	x	x	x	x	x	F	x	
	[Zhuhai]															
Xiang Zhou	Urban	daily	x	x	x	x	x	x	x	x	x	x	F	x		
Zhuxiandong	Urban	daily	x	x	x	x	x	x	x	x	x	x	F	x		
<u>[Wuzhishan]</u>				<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>F</u>	<u>x</u>	
<u>[Lijiang]</u>				<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>F</u>	<u>x</u>	
<u>[Lijiang]</u>	Remote	daily	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>F</u>	<u>x</u>	
<Indonesia>	Jakarta	Urban	weekly	x	x	x	x	x	x	x	x	x	x		x	
	Serpong	Rural	daily	x	x	x	x	x	x	x	x	x	x		x	
	Kototabang	Remote	weekly	x	x	x	x	x	x	x	x	x	x			
	Bandung	Urban	daily	x	x	x	x	x	x	x	x	x	x			
	Maros	Rural	weekly	x	x	x	x	x	x	x	x	x	x			
	<u>Jembrana</u>	<u>Rural</u>	<u>weekly</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>		
<u>Lombok</u>	<u>Rural</u>	<u>weekly</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>			
<Japan>	Rishiri	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	Ochiishi	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	Tapp(-MAR 2019)	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	<u>Niigata-Maki</u>	<u>Rural</u>	<u>daily</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>		<u>x</u>	
	<u>(APR 2019-)</u>			<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>		<u>x</u>	
	Ogasawara	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	Sado-seki	Remote	daily	x	x	x	x	x	x	x	x	x	x	HCO <sub>3</sub> <sup>-</sup>	x	
	Happo	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	Oki	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
	Yusuhara	Remote	daily	x	x	x	x	x	x	x	x	x	x	F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup>	x	
	<u>Tsushima</u>	<u>(APR 2019-)</u>	<u>Remote</u>	<u>daily</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>	<u>x</u>		<u>x</u>
	Hedo	Remote	daily	x	x	x	x	x	x	x	x	x	x		x	
Ijira	Rural	weekly	x	x	x	x	x	x	x	x	x	x		x		
Banryu(-MAR 2019)	Urban	weekly	x	x	x	x	x	x	x	x	x	x	F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup>	x		
Tokyo	Urban	daily	x	x	x	x	x	x	x	x	x	x	F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup>			
<Lao PDR>	Vientiane	Urban	daily	x	x	x	x	x	x	x	x	x				
<Malaysia>	Petaling Jaya	Urban	weekly	x	x	x	x	x	x	x	x	x			x	
	Tanah Rata	Rural	weekly	x	x	x	x	x	x	x	x	x			x	
	Danum Valley	Remote	weekly	x	x	x	x	x	x	x	x	x				
	Kuching	Urban	weekly	x	x	x	x	x	x	x	x	x				
<Mongolia>	Ulaanbaatar	Urban	daily	x	x	x	x	x	x	x	x	x	HCO <sub>3</sub> <sup>-</sup>		x	
	Tereij	Remote	daily	x	x	x	x	x	x	x	x	x	HCO <sub>3</sub> <sup>-</sup>		x	
<Myanmar>	Kaha-Aya, Yangon	Urban	daily	x	x	x	x	x	x	x	x	x				
<Philippines>	Metro Manila	Urban	weekly	x	x	x	x	x	x	x	x	x			x	
	Los Banos	Rural	weekly	x	x	x	x	x	x	x	x	x			x	
	Mt. Sto. Tomas	Remote	weekly	x	x	x	x	x	x	x	x	x			x	
<Republic of Korea>	Kanghwa	Rural	daily	x	x	x	x	x	x	x	x	x			x	
	Cheju(Kosan)	Remote	daily	x	x	x	x	x	x	x	x	x			x	
	Imsil	Rural	daily	x	x	x	x	x	x	x	x	x			x	
<Russia>	Mondy	Remote	daily	x	x	x	x	x	x	x	x	x			F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , Br <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup>	
	Listvyanka	Rural	daily	x	x	x	x	x	x	x	x	x			F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , Br <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup>	
	Irkutsk	Urban	daily	x	x	x	x	x	x	x	x	x			F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , Br <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup>	
	Primorskaya	Rural	daily	x	x	x	x	x	x	x	x	x			F <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , Br <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup>	
<Thailand>	Bangkok	Urban	daily	x	x	x	x	x	x	x	x	x				
	Samuyprakan	Urban	daily	x	x	x	x	x	x	x	x	x				
	Patumthani	Rural	daily	x	x	x	x	x	x	x	x	x				
	Khanchanaburi (Vachralongkorn Dam)	Remote	daily	x	x	x	x	x	x	x	x	x				
	Chiang Mai(Mae-Hia)	Rural	daily	x	x	x	x	x	x	x	x	x				
	Sakaerat	Rural	daily	x	x	x	x	x	x	x	x	x				
<Viet Nam>	Hanoi	Urban	weekly	x	x	x	x	x	x	x	x	x			F <sup>-</sup>	
	Hoa Binh	Rural	weekly	x	x	x	x	x	x	x	x	x			F <sup>-</sup>	
	Cuc Phuong	Remote	weekly	x	x	x	x	x	x	x	x	x			HCO <sub>3</sub> <sup>-</sup>	
	Da Nang	Urban	weekly	x	x	x	x	x	x	x	x	x			HCO <sub>3</sub> <sup>-</sup>	
	Can Tho	Rural	weekly	x	x	x	x	x	x	x	x	x			F <sup>-</sup>	
	Ho Chi Minh	Urban	weekly	x	x	x	x	x	x	x	x	x			F <sup>-</sup>	
	Yen Bai	Rural	weekly	x	x	x	x	x	x	x	x	x			F <sup>-</sup>	

Table 2. Dry Deposition Monitoring

Country	Monitoring sites	Classification	Monitoring method	Priority of the chemical species												
				SO <sub>2</sub>	O <sub>3</sub>	NO	NO <sub>2</sub> , NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	HNO <sub>3</sub>	HCl	NH <sub>3</sub>	SO <sub>4</sub> <sup>2-</sup>	NO <sub>3</sub> <sup>-</sup>	NH <sub>4</sub> <sup>+</sup>	Ca <sup>2+</sup>
<Cambodia>	Phnom Penh	Urban	AT, FP	x	x				x	x	x	x	x	x	x	x
<China>	[Chongqing]	Rural	AT	x		x	x	x								
	Jinyunshan [Xiamen]	Urban	AT, FP	x			x	x			x	x	x	x	x	x
	Hongwen [Zhuhai]	Urban	AT	x			x	x								
	Haibin Park [Wuzhishan]	Remote	AT	x			x	x								
	[Lijiang]	Remote	AT	x			x	x								
	[Lijiang]	Remote	AT	x			x	x								
<Indonesia>	Jakarta	Urban	AT, FP, PS	x			x		x	x	x	x	x	x	x	x
	Serpong(EMC)	Rural	FP, PS	x			x			x	x	x	x	x	x	x
	Kototabang	Remote	PS	x			x									
	Bandung	Urban	FP, PS	x	x		x			x	x	x	x	x	x	x
<Japan>	Rishiri	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Ochiishi	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Tappi (-MAR 2019)	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Nigata-Maki (APR 2019)	Rural	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Ogasawara	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Sado-seki	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Happo	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Oki	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Yusuhara	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Tsushima (APR 2019-)	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Hedo	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Ijira	Rural	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Banryu (-MAR 2019)	Urban	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Tokyo	Urban	FP	x						x	x	x	x	x	x	x
<Lao PDR>	Vientiane	Urban	AT, FP	x		x	x	x	x	x	x	x	x	x	x	x
<Malaysia>	Petaling Jaya	Urban	FP	x						x	x	x	x	x	x	x
	Tanah Rata	Rural	FP	x						x	x	x	x	x	x	x
	Danum Valley	Remote	FP	x						x	x	x	x	x	x	x
<Mongolia>	Ulaanbaatar	Urban	AT, FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Terej	Remote	FP	x						x	x	x	x	x	x	x
<Myanmar>	Yangon	Urban	FP, AT	x					x	x	x	x	x	x	x	x
	Mandalay	Urban	AT						x							
<Philippines>	Metro Manila	Urban	AT, FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Los Banos	Rural	FP	x						x	x	x	x	x	x	x
	Mt. Sto. Tomas	Remote	FP	x						x	x	x	x	x	x	x
<Republic of Korea>	Kanghwa	Rural	AT,FP	x	x		x	x	x	x	x	x	x	x	x	x
	Cheju(Kosan)	Remote	AT,FP	x	x		x	x	x	x	x	x	x	x	x	x
	Imsil	Rural	AT,FP	x	x		x	x	x	x	x	x	x	x	x	x
<Russia>	Mondy	Remote	AT, FP, (PS)	x	x					x	x	x	x	x	x	x
	Listvyanka	Rural	AT, FP, PS	x	x	x	x			x	x	x	x	x	x	x
	Irkutsk	Urban	FP, PS	x	x					x	x	x	x	x	x	x
	Primorskaya	Rural	FP	x						x	x	x	x	x	x	x
<Thailand>	Bangkok	Urban	AT, FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Samutprakarn	Urban	AT	x	x	x	x	x	x							
	Pathumthani	Rural	FP	x						x	x	x	x	x	x	x
	Khanchanaburi (Vachralongkorn Dam)	Remote	AT,FP	x	x	x	x	x	x	x	x	x	x	x	x	x
	Chiang Mai (Mae-Hia)	Rural	FP	x						x	x	x	x	x	x	x
	Chiang Mai (Chang Phueak)	Urban	AT	x	x	x	x	x	x							
	Chiang Mai (Si Phum)	Urban	AT	x	x	x	x	x	x							
	Sakaerat	Rural	FP	x						x	x	x	x	x	x	x
	Nai Mueang	Rural	AT	x	x	x	x	x								
<Viet Nam>	Hanoi	Urban	FP	x						x	x	x	x	x	x	x
	Hoa Binh	Rural	AT, FP	x						x	x	x	x	x	x	x
	Can Tho	Rural	FP	x						x	x	x	x	x	x	x
	Ho Chi Minh	Urban	FP	x						x	x	x	x	x	x	x
	Yen Bai	Rural	FP	x						x	x	x	x	x	x	x

AT: Automatic Monitor, FP: Filterpack, PS: Passive Sampler

Table 3 Soil & Vegetation monitoring

Country/items	Monitoring sites	Classifi- cation	Monitoring interval (Soil)	Monitoring interval (Forest)	Soil										Forest monitoring					
					Mandatory items:						Opetinal items			Voluntary item	mandatory item(3- 5years)		Every year	Optional items		
					Moisture contents	pH (H <sub>2</sub> O)	pH (KCl)	Ex-base cations (Ca, Mg, K, and Mg)	Ex- Acidity	Effective cation ex- capacity (ECEC)	Carbonate contents	Ex-acid cations (AL, H)	TC	TN	Available Phosphate/ Sulfate	Description of trees	Understory vegetation survey	Observa tion of tree decline	Photographic record of tree decline	Estimation of decline causes
<China>	[Chongqing] Jinyunshan	Rural	Once/3years	Once/3years	x	x	x	x	x	x	x	x				x	x	x		
	[Xi'an] Jiwozi	Remote	Once/3years	Once/3years	x	x	x	x	x	x	x	x	x	x	x	x				
	[Xiamen] Xiaoping	Remote	Once/3years	Once/3years	x	x	x	x	x	x	x	x	x	x	x	x				
	[Zhuhai] Zhuxiandong	Urban	Once/3years	Once/3years	x	x	x	x	x	x	x	x	x	x	x	x				
<Indonesia>	Bogor Research Forest (Darmage Experimental Forest)	Rural	Once/5years	Once/5years		x	x	x		x	x	x	x	x	x	x				
<Japan>	Ijira	Rural	Once/5years	Once/5year	x	x	x	x	x	x		x				x	x	x	x	x
	<del>Sekido-san, Horyu- san(APR 2019-)</del> Banryu(-MAR 2019)	<del>Rural</del> Urban	<del>Once/6years</del> Once/5years	<del>Once/6year</del> Once/5year	<del>x</del>	<del>x</del>	<del>x</del>	<del>x</del>	<del>x</del>	<del>x</del>		<del>x</del>	x	x	Phosphate	<del>x</del>	<del>x</del>	<del>x</del>	<del>x</del>	<del>x</del>
<Malaysia>	Pasoh Reserve Forest	Urban	Once/3years		x	x	x	x	x			x	x	x	x	x		x		x
	Universiti Putra Malaysia <del>Bintulu</del> Rehabilitated Forest	Urban	Once/3years		x	x	x	x	x						x		x			
<Mongolia>	Ulaanbaatar (Bogdkhan mountain)	Urban	Once/3-5years	Once/3-5years	x	x	x	x	x	x	x	x	x	Phosphate	x		x			
<Philippines>	Los Banos Laguna (Makiling Forest Reserve)	Rural	Once/3years	Once/3years	x	x	x	x	x	x		x	x	x		x	x	x	x	
	UP Quezon- Laguna Land Grant	Rural	Once/3years	Once/3years	x	x	x	x	x	x		x	x	x		x	x	x	x	
	Metro Manila (La Mesa Dam Watershed)	Urban	Once/3years	Once/3years	x	x	x	x	x	x		x	x	x		x	x	x	x	
	Mt. Sto. Tomas (ERDS Research Station)	Remote	Once/3years	Once/3years	x	x	x	x	x	x		x	x	x		x	x	x	x	
<Republic of Korea>	Imsil (Mt.Naejang)	Rural	Once/3years	Once/3years	x	x	x	x	x	x		x			x	x	x			
<Russia>	Mondy	Remote	Once/5years	Once/3-5years	x	x	x	x	x	x	x	x	x		x		x			
	Listvyanka	Rural	Once/5years	Once/3-5years	x	x	x	x	x	x	x	x	x		x		x			
	Primorskaya	Rural	Once/5years	Once/3-5years	x	x	x	x	x	x	x	x	x		x		x			
	Irkutsk	Urban	Once/5years	Once/3-5years	x	x	x	x	x	x	x	x	x		x		x			
<Thailand>	Vachiralongkorn Dam	Remote	Once/3-5years	Once/3-5years	x	x	x	x	x	x					x		x			
	Vachiralongkorn Puye	Remote	Once/3-5years	Once/3-5years	x	x	x	x	x	x					x		x			
<Viet Nam>	Cuc Phuong	Rural	Once/3-5years	Once/3-5years		x	x	x		x							x			

Table 4 Inland Aquatic Environment monitoring

Country	Monitoring sites	Classification	Monitoring interval	Mandatory items(4times/year)											Mandatory items(Once/year)					Optional									
				W.T	pH	EC	Alkalinity	SO <sub>4</sub> <sup>2-</sup>	NO <sub>3</sub> <sup>-</sup>	Cl <sup>-</sup>	Na <sup>+</sup>	K <sup>+</sup>	Ca <sup>2+</sup>	Mg <sup>2+</sup>	NH <sub>4</sub> <sup>+</sup>	Transparenc y	water color	DOC (COD)	NO <sub>2</sub> <sup>-</sup>	PO <sub>4</sub> <sup>3-</sup>	T-N	T-P	TOC	diss-Al	Si	Fe	Mn	Chlorophyll a	DO
<China>	[Chongqing]																												
	Jiayunshan Lake [Xi'an]	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x									
	Jiwozi River [Xiamen]	Remote	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x									
	Xiaoping Dam [Zhuhai]	Remote	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x									
	Zhuxiandong Stream	Urban	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x									
<Indonesia>	Patenggang Lake	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x															
	Gunung Lake	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x															
<Japan>	Ijira Lake	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x							x		x	x
	Futago-ike(APR 2019-)	Remote	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x							x		x	x
	Banryu Lake(MAR 2019)	Urban	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x			
<Lao-PDR>	Nam Houm Lake	Urban	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x		x											x	
<Malaysia>	Semenyih Dam	Urban	4 times/year	x	x	x	x	x	x	x	x	x	x	x			x		x										
	Tembaling River	Remote	4 times/year	x	x	x	x	x	x	x	x	x	x	x			x		x										
<Mongolia>	Terej River	Remote	4-5 times/year	x	x	x	x	x	x	x	x	x	x	x					x	x									
<Philippines>	Pandin Lake	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x			BOD5	x	x								x	
	Ambulalakao River	Remote	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x			BOD5	x	x								x	
<Russia>	Percemnaya River	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x							x			
	Komarovka River	Rural	5 times/year	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x					x	x		x	
<Thailand>	Vachiralongkorn Dam	Remote	4 times/year	x	x	x	x	x	x	x	x	x	x	x															
<Viet Nam>	Hoa Binh Reservoir	Rural	4 times/year	x	x	x	x	x	x	x	x	x	x	x	x					x	x								