

# **Data Reporting Format**

**North-East Asian Centre for  
Environmental Data and Training**

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# Abbreviations and Acronyms

## 1. Air pollutants

- CO : carbon monoxide
- CH<sub>4</sub> : methane
- NO<sub>2</sub> : nitrogen dioxide
- NO : nitric oxide
- NO<sub>X</sub> : nitrogen oxides (NO + NO<sub>2</sub>)
- N<sub>2</sub>O : nitrous oxide
- O<sub>3</sub> : ozone
- PAH : polycyclic aromatic hydrocarbons
- PM<sub>10</sub> : particulate matter with an aerodynamic diameter smaller than 10 micrometer
- SO<sub>2</sub> : sulphur dioxide
- TSP : total suspended particulates
- VOC : volatile organic compounds

## 2. Country or Organization

- ADB : Asian Development Bank
- DPRK : Democratic People's Republic of Korea
- NEACEDT : North-East Asian Centre for Environmental Data and Training
- NIER : National Institute of Environmental Research
- ROK : Republic of Korea
- UNESCAP : United Nations Economic and Social Commission for Asia and the Pacific

### 3. Units

- °C : degrees Celsius

The relationship with other expression for temperature is as the following

- K (Kelvin) : absolute temperature,  $K = °C + 273.16$

- °F (Fahrenheit) :  $°C = (°F - 32) \times 5/9$

- R (Rankine) : absolute temperature,  $R = °F + 459.69$

- m<sup>3</sup> : cubic meter
- MJ : mega joule
- m : meter
- mg : milligram, 10<sup>-3</sup>gram
- mg/m<sup>3</sup> : milligrams per cubic meter
- mm : millimeter, 10<sup>-3</sup>m
- m/s : meters per second
- ppb : parts per billion
- ppm : parts per million, 10<sup>3</sup> ppb
- µg : microgram, 10<sup>-6</sup>gram
- µg / m<sup>3</sup> : micrograms per cubic meter

### 4. The Others

- AQ : Air Quality
- AQM : Air Quality Monitoring
- LNG : Liquefied Natural Gas
- LPG : Liquefied Petroleum Gas
- NEASPEC : North-East Asian Subregional Programme on Environmental Cooperation

## Background

The NEASPEC Project activity was conceptualized during the Second Meeting of Senior Officials on Environmental Cooperation in North-East Asia, held at Beijing in 1995. Five priority projects were endorsed for implementation. Out of the five projects, three projects were implemented with the funding support from the Asian Development Bank, i.e.:

- 1) Subproject-I: Training for sulphur dioxide reduction in coal-fired power plants
- 2) Subproject-II: Demonstration of low-air pollution coal-fired power plant technology
- 3) Subproject-III: Environmental pollution-data collection, comparability and analysis

Sixteen activities were implemented during the first three years, Beginning with the Demonstration and on-site workshop on Clean Coal Technology in Tong Liao, China and continuing with six technology demonstration and on-site workshops, four expert meetings, development of four project profiles and two project review meetings. These activities, i.e. “the first phase” projects, were completed by the organization of the Final Review Meeting in May 1998, with two additional activities carried out later in 1998 and in 1999.

These activities prominently displayed increased human capacities for efficient operation and improved environmental control in existing coal-fired power plants, technology transfer and cooperation through dissemination of information on the efficiency and clean operation of coal-fired power plants, increased cooperation and capacities on pollution data collection and monitoring, and analysis for comparability of ambient and emission data from power plants. Additionally four project profiles were developed to follow up on the first phase project activities in order to further promote the objectives of environmental cooperation in North-East Asia.

The project profile identified four primary areas for priority funding, i.e.:

- 1) Project I: Pollution Reduction in Coal-fired Power Plants
- 2) Project II: Environmental Monitoring Data Collection, Comparability and Analysis
- 3) Project III: Efficiency Improvement of Electrostatic Precipitators in Existing Power Plants
- 4) Project IV: Demonstration of Dry Sorbent Duct Injection FGD Technology

After the endorsement of the project profiles at the Fourth Meeting of Senior Officials in 1998, the Fifth Meeting in 1999 reaffirmed that these four projects (second phase projects) should build on the tangible results of the completed projects and urged each participating country and collaborating agencies to continue efforts to secure support for those projects in order to maintain and enhance this subregional cooperation in its second phase.

In 1999, the Asian Development Bank (ADB) generously offered funding on some of the second phase projects. The financial package, named Regional Technical Assistance for Transboundary Environmental Cooperation in North-East Asia, includes a \$350,000 grant by the Bank, consisting of the three components. In response to the request made by the Sixth Meeting of Senior Official at Seoul in 2000, the titles of the three components are as follows:

- 1) Regional training for reducing pollution from coal-fired power plants
- 2) Environmental Monitoring, Data Collection, Comparability and Analysis
- 3) Action plans for improving the efficiency of particulate abatement systems in existing power plants

These three components correspond to the NEASPEC Project I to III, as endorsed by the Fourth Meeting of Senior Officials at Moscow (1998).

Following the conclusion of the letter of agreement between the Asian Development Bank and ESCAP as executing agency for the implementation of the Regional Technical Assistance project, the ADB funds became disburseable by early 2001.

With regard to Project II- Environmental Monitoring Data Collection, Comparability and Analysis, the participating countries, in various meetings, have expressed their willingness for active involvement in the project on the development of a regional network for environmental monitoring. To facilitate such activities, the establishment of the “North-East Asian Centre for Environmental Data and Training (NEACEDT)” was proposed by the Republic of Korea and approved by the Fifth Meeting of Senior Officials (1999).

The Sixth Meeting of the Senior Officials (2000) invited the representatives of the National Institute of Environmental Research (NIER) in the Republic of Korea, to present their preparatory activities for hosting the subregional centre, entitled “North-East Asian Centre for Environmental Data and Training (NEACEDT).” After reviewing NIER’s activities, the Meeting noted the proposal by NIER, as regards to their first step activities towards the establishment of NEACEDT, including the nomination of the national focal point, and called for appropriate assistance from the participating countries for the activities of NEACEDT.

The First Meeting of the National Focal Points for the North-East Asian Centre for Environmental Data and Training (NEACEDT) was held at NIER in Incheon, Republic of Korea, from February 14 to 16, 2001. The Meeting successfully reviewed the progress of the preparatory activities for the establishment of NEACEDT and exchanged views on future development of the NEACEDT activities between the national focal points nominated by participating countries. The Meeting had a general consensus on the objective of the subregional data centre and agreed upon further steps for the finalization of NEACEDT’s workplan. The Seventh Meeting of Senior Officials held in Beijing, China in July 2001, endorsed the recommendations by the First Meeting of the National Focal Points of NEACEDT with the exception of one recommendation on the use of the Core Fund, an issue that was separately considered. The Meeting reiterated the importance of enhanced participation by all the NEASPEC countries in the development of the Centre’s activities.

In pursuit of the recommendations at the First Meeting of the National Focal Points, ESCAP recruited an international consultant to assist NIER in formulating the Workplan of NEACEDT. The consultant was assigned to comprehensively review the earlier agreements and suggestions provided by the meetings of Senior Officials and other relevant NEASPEC activities, to assess up-to-date situations on available resources in the host institution, and to develop a draft Workplan for the Centre covering its activities during next two years. The draft was circulated among participating countries and relevant organizations for review and comments, and formed the basis on which the Workplan was finalized in January 2002.

In accordance with the Workplan, the Expert Group Meeting on Capacity Building and Data Intercomparability for Ambient Air Quality Monitoring in North-East Asia was organized by NEACEDT from April 24 to 26, 2002 at Incheon, Republic of Korea. The Meeting, successfully reviewed the progress in the data/information collection activity by NEACEDT concerning ambient air quality monitoring in North-East Asia, and formulated a set of recommendations on subsequent

development of NEACEDT's activities with particular emphasis on further promotion of capacity building and data intercomparability for ambient air quality monitoring in North-East Asia.

The on-site assessment workshop to be held in Mongolia will be attended by experts in ambient air quality monitoring, including representatives from the relevant national centres of each participating country. The programme essentially consists of 1) group visits to and observation of monitoring stations with explanation by the host country experts, 2) interactive discussions based on the findings at the site observation, and 3) formulation of joint recommendations elaborating the country-specific strategy for further capacity development.

This on-site assessment workshop will function both as a mechanism for formulating practical recommendations on monitoring capacity development in the host country, and as a training opportunity for participants to gain experience in elaborating country-specific strategy for monitoring capacity development in their home country.

In order to ensure that the NEACEDT activities should be developed better reflecting the existing capacities and needs of the participating country institutions, NEACEDT would conduct a series of expert visits to participating countries. The visits would be conducted by the most relevant experts from NEACEDT, and the programme of each visit would essentially include: 1) observation of national monitoring centres, laboratories, and monitoring stations, 2) interview with key national experts in the relevant field, and 3) meeting with the National Focal Point for concluding the findings from the expert visit.

Since the organization of the First Meeting of the Task Force held in Kyoto in December 1999, activities of the Task Force on Air Pollutant Emission have been maintained with financial and technical supports by the Ministry of the Environment, Government of Japan and the Japan Environmental Technology Association (JETA). In order to review the final draft Recommendations of Methodologies on Air Pollutant Emission Monitoring, developed by the Task Force, and to discuss further promotion of capacity building in the field of air pollutant emission monitoring in North-East Asia, the Expert Group Meeting on Capacity Building of Air Pollutant Emission Monitoring in North-East Asia was held in Yokohama, Japan from March 13 to 15, 2002. The Meeting acknowledged the finalization of the Recommendations of Methodologies and formulated a set of recommendations, in particular, on use of the document in subsequent capacity building activities in the relevant field.

The training for Air Pollutant Emission Monitoring in North-East Asia was held in China from guidelines in the conduct of future training and capacity building for air pollutant emission monitoring and estimation in the countries of North-East Asia. The objective of the North-East Asian Centre for Environmental Data and Training (NEACEDT) is to contribute to environmental protection and recovery in the North-East Asian Subregion through coordination in the exchange of information on environmental monitoring and data comparability, and gathering and disseminating information on updated environmental monitoring technologies and methodologies.

The following segment of NEACEDT activities is connected with the Report on "A Comparability Analysis on Ambient Air Quality Data of North-East Asian Countries"

- ❖ The Centre should establish regular communication with the National Focal Points. In particular, the Centre should follow up on the recommendations of the First Meeting of the National Focal Points held in February 14 – 16, 2001. Participating countries should communicate to the Centre

any available data on air quality monitoring that may be published in each country, according to their differentiated situation on data availability and country's readiness to participate according to the guidelines formed during the previous meetings.

- ❖ On the basis of the data collected through the above practice, and also on the preliminary assessment by the Centre on the availability of environmental monitoring data from participating countries, the Centre should develop a proposal for model protocols on data collection, analysis and dissemination of environmental monitoring data. This proposal, which would possibly include a prototype of a database to facilitate data exchange and dissemination through the internet-based communication, should be circulated among the national focal points and then presented at the Expert Group Meeting on Capacity Building and Data Intercomparability for Ambient Air Quality Monitoring in North-East Asia for review and adoption.
- ❖ Should the Expert Group Meeting agree upon the strategies for data compilation, analysis and dissemination by NEACEDT and national centres, including adoption of the protocols on data collection, analysis and dissemination of environmental monitoring data by NEACEDT, NEACEDT would start its operation as a clearinghouse for environmental monitoring data from North-East Asian countries according to the agreed strategies.

The Workplan of NEACEDT activities was finalized in January 2002. In accordance with the Workplan, NEACEDT is preparing the report on "A Comparability Analysis on Ambient Air Quality Data of North-East Asian Countries". This report will include a part of the AQM data, which was presented at the Expert Group Meeting on Capacity Building, and Data Intercomparability for Ambient Air Quality Monitoring in North-East Asia (24-26 April 2002, at ROK).

This Reporting Format is for preparation of the report on "A Comparability Analysis on Ambient Air Quality Data of North-East Asian Countries".

## Data Reporting

National Focal Points (NFPs) are requested to present the monitoring data from 5 monitoring stations, preferably including sites in 2 urban areas, 2 Peri-urban areas, 1 Rural area or more, respectively, according to the Workplan of the NEACEDT. Measurement period should preferably include two-year (Year 2000, 2001) period from January to December.

Measurement parameters should preferably include SO<sub>2</sub>, TSP, NO<sub>2</sub> and other pollutants, such as O<sub>3</sub>, CO, PM<sub>10</sub>, may also be included according to data availability

 **Each data sheet may be modified according to the data condition of participating countries.**

National Focal Points of NEASPEC Countries are invited to submit a report in the attached data reporting formats, to the extent possible with available resources, **by 19 September 2003**, at the following address or Fax or E-mail.

To reduce the workload during the data compilation process, the submission of the reports via electronic media, in addition to the documents, is strongly encouraged.

**- Address:**

Dr. KIM MYUNGJIN or Ms. KANG MIYOUNG  
North East Asian Centre for Environmental Data and Training (NEACEDT)  
National Institute of Environmental Research (NIER), Environmental Research Complex,  
Kyongseodong, Seogu, Incheon 404-170, Republic of Korea

**- Fax :** (82 32) 568-2036 / 560-7720

**- Tel :** (82 32) 560-7719

**- E-mail address:**

**Dr. KIM MYUNGJIN :** [kimmj4@me.go.kr](mailto:kimmj4@me.go.kr)

**Ms. KANG MIYOUNG :** [mkang@me.go.kr](mailto:mkang@me.go.kr)

**Data reporting format can be downloaded from NEACEDT homepage, [www.neaspec.go.kr](http://www.neaspec.go.kr)**



## &lt; Sample 2&gt;

Country	Parameter	Averaging Time	Standard (or less)
ROK	SO <sub>2</sub>	1yr	0.02ppm
		24hr	0.05ppm
		1hr	0.15ppm
	CO	8hr	9ppm
		1hr	25ppm
	NO <sub>2</sub>	1yr	0.05ppm
		24hr	0.08ppm
		1hr	0.15ppm
	O <sub>3</sub>	8hr	0.06ppm
		1hr	0.10ppm
	PM <sub>10</sub>	1yr	70 µ /µ
		24hr	150 µ /µ
Lead	1 yr	0.5 µ /µ	

## 2. AQM Summary of Participating Countries

Give an account of the administration and managing aspects for AQM in each country.

- What is the Responsible Agency for Air Quality Monitoring?

<sample> ROK : Ministry of Environment

- What is the Air Quality Monitoring Data Centre?

<sample> ROK : National Institute of Environmental Research

- What is the Monitoring Mode (automatic or manual or others)?

<sample> ROK : Automatic

### Country :

Types of Monitoring Station	Number of Sites	Measurement Interval <sup>1</sup>	Sampling Period <sup>2</sup>	Parameters Monitored <sup>3</sup>

1. Continuous/ hourly/ daily/ weekly/ Monthly/ Quarterly/ Seasonal/ Yearly/ other ( )

2. 1hr/ a day/ a week/ a month/ case by case/ other ( )

3. Pollutant items and meteorological elements

< Sample >

**Country: ROK (by December 2002)**

Types of Monitoring Station	Number of Sites	Measurement Interval	Sampling Period	Parameters Monitored
General	174	Continuous	1hr	SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , CO, PM <sub>10</sub> , Wind Direction/Speed, Temperature, Relative Humidity
Roadside	17	Continuous	1hr	SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , CO, PM <sub>10</sub> , Wind Direction/Speed, Temp.
Acid Precipitation	28	Case by case		pH, Precipitation, Ion concentration, Electric Conductivity
National Background	5	Continuous	1hr	SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , CO, PM <sub>10</sub> , Wind Direction/Speed, Temp.
Local Background	11	Continuous	1hr	SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , CO, PM <sub>10</sub> , Wind Direction/Speed, Temp.
Heavy Metals	40	Monthly	5times	Pb, Cd, Cr, Cu, Mn, Fe, Ni
Hazardous	16	Quarterly	once	12 of VOCs and 7 of PAHs
Photochemical	15	Continuous	1hr	56 of VOCs
Global	1	Continuous	1hr	CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O
Visibility	2	Continuous	1hr	Visibility

**3. Measurement Methodology**

If the AQ data was measured by automatic monitoring, fill in the Table 3.1 automatic monitoring.

If the AQ data was measured by manual monitoring, fill in the Table 3.1, 3.2, and write in 3.3.

**3.1 Measurement Methods****Country:**

Parameters	Measurement Methods or Techniques

## &lt; Sample &gt;

**Country: ROK**

Parameters	Measurement Methods or Techniques
SO <sub>2</sub>	Pulse U.V. Fluorescence Method
NO <sub>2</sub>	Chemiluminescent Method
PM <sub>10</sub>	β-ray Absorption Method
CO	Non-Dispersive Infrared Method
O <sub>3</sub>	U.V. Photometric Method

### 3.2 Sampling Methods

**Country:**

Parameters	Sampling Methods and Devices
	<ul style="list-style-type: none"> <li>• Sampling Methods and Devices</li> <li>• Sampling flow rate: ( ) liters/min<sup>1</sup></li> </ul>

1: Sampling flow rate of SO<sub>2</sub> and NO<sub>2</sub>

< Sample >

**Country: Mongolia**

Parameters	Sampling Methods and Devices
SO <sub>2</sub> , NO <sub>2</sub>	<ul style="list-style-type: none"> <li>• Absorption in the impregnated tube</li> <li>• Sampling flow rate: ( ) liters/min<sup>1</sup></li> </ul>

1: Sampling flow rate of SO<sub>2</sub> and NO<sub>2</sub>

### 3.3 Laboratories (Agency) for Measurement

**Country:** Write the name of laboratory (agency) responsible for measurement

< Sample >

Mongolia: Central Laboratory of Environmental Monitoring / Tsetserleg Environmental Laboratory / BorUnder air quality station / Ulaangom Environmental Laboratory



## 5. Data Reports and Reporting Period in Participating Countries

This is information about the period when data reports and summarizing reports (e.g. annual reports) are produced. Validated data means the quality-controlled data after measurement.

Country	Data Reports <sup>1</sup>		Reporting <sup>2</sup> (month of next year)
	Non-validated data	Validated data	

1. e.g. near-real-time (nrt)/ available after 1 month delay (1 month)

2. Publication of summarizing reports (e.g. annual reports)

< Sample >

Country	Data Reports <sup>1</sup>		Reporting <sup>2</sup> (month of next year)
	Non-validated Data	Validated Data	
ROK	After 1 month	After 6 months	End of June

1. e.g. near-real-time (nrt)/ available after 1 month delay (1 month)

2. Publication of summarizing reports (e.g. annual reports)

## Part II Ambient Air Quality (Chapter 6 –7)

### 6. Background Information of Ambient Air Quality

#### 6.1 Summary of Monitoring Sites and Meteorological Data

It's the monitoring data submitted from 5 monitoring stations preferably including sites in 2 urban areas, 2 peri-urban areas, 1 rural area or more.

##### 6.1.1 Information of cities which have AQM sites.

Country:

Classification	City (Name or Location of Sites)	Population (000's)	Area (km <sup>2</sup> )	Number of Cars	Economic Structure <sup>1</sup>	Major Fuel Types for Domestic Heating <sup>2</sup>	Potential Contamination Sources <sup>3</sup>	Geographical Description <sup>4</sup>
Urban								
Peri-urban								
Rural								

1: Harbour, industrial area, residential, commercial, etc.

2: Kerosene, Bunker-c oil, LNG, LPG, coal, etc.

3: Major air pollution sources and source types [If there are effects from long-range transport, assume and write the name of the city which are affected to monitoring sites (cities)].

4: Location and height of mountains in (around) the city, Characteristics of sea, river and (or) lakes, etc. in the city

&lt; Sample &gt;

Country: ROK (Year 2001)

Classification	City (Name or Location of Sites)	Population (000's)	Area (km <sup>2</sup> )	Number of Cars	Economic Structure <sup>1</sup>	Major Fuel Types for Domestic Heating <sup>2</sup>	Potential Contamination Sources <sup>3</sup>	Geographical Description <sup>4</sup>
Urban	Seoul (Shinseol)	10,331	605	2,550,441	Industrial, Residential, Commercial areas	LNG	Vehicles	<ul style="list-style-type: none"> <li>- Capital of ROK</li> <li>- Located in the west central part of the Korean Peninsula</li> <li>- The Han River separates the entire length of Seoul (north and south)</li> <li>- Lies in a natural basin, surrounded by mountains and hills</li> </ul>
	Busan (Gwangbok)	3,786	762	862,669	Harbor, Industrial, Residential, Commercial areas	LNG	Vehicles, Industrial complex	<ul style="list-style-type: none"> <li>- The second largest city in ROK</li> <li>- Located on the southeastern tip of the Korean Peninsula</li> <li>- A basin which is located in the hilly mountainous district at the rear</li> <li>- It's bounded on the south by the sea</li> </ul>
Peri-urban	Gwacheon	71	36	19,097	Residential area	LNG	Contamination from Seoul, Vehicles	<ul style="list-style-type: none"> <li>- A suburb of Seoul</li> <li>- Green Belt area is 92%</li> <li>- A garden city</li> <li>- Surrounded by 3 mountains</li> </ul>
	Changwon	528	293	161,661	Industrial, Residential, Commercial areas	LNG	Contamination from Busan, Industrial complex	<ul style="list-style-type: none"> <li>- Located in the southeast extremity of ROK</li> <li>- Machinery &amp; industry complex</li> <li>- A suburb of Busan</li> <li>- It is bounded on the southeast by the sea</li> <li>- Surrounded by mountains</li> </ul>
Rural	Jeju (Gosan)	547	1,847	170,715	Residential, Sightseeing areas	LPG	Vehicles	<ul style="list-style-type: none"> <li>- The largest island in ROK</li> <li>- Mt. Halla rises in the center of Jeju</li> <li>- Jeju's natural environment is preserved well</li> </ul>

### 6.1.2 Characteristics of Monitoring Sites and Meteorological Data (Year 2000 and 2001)

This is the information on monitoring sites and meteorological data for air quality data.

#### Country:

Classification <sup>1</sup>	Name or Location of Sites <sup>2</sup>	City	Land Use	Coordinates		Monitored Items	Meteorological Data for Year 2000 (Average)				
				Latitude	Longitude		Temperature ( )	Precipitation (mm)	Relative Humidity (%)	Solar Radiation (MJ/l )	Wind Speed (m/s)
Urban											
Peri-urban											
Rural											

1 and 2 will be same as the sites (and city) of Table in previous Chapter 6.1.1 (Information of the cities where the AQM sites are)

#### < Sample >

#### Country: ROK

Classification	Name or Location of Sites	City	Land Use	Coordinates		Monitored Items	Meteorological Data for Year 2000 (Average)				
				Latitude	Longitude		Temperature ( )	Precipitation (mm)	Relative Humidity (%)	Solar Radiation (MJ/l )	Wind Speed (m/s)
Urban	Shinseol	Seoul	Residential area	37° 34'N	127° 01'E	SO <sub>2</sub> , NO <sub>2</sub> , CO, PM <sub>10</sub>	12.7	1,186.8	64	3,902	2.5
	Gwangbok	Busan	Commercial area	35° 05'N	129° 01'E	SO <sub>2</sub> , NO <sub>2</sub> , CO, PM <sub>10</sub>	14.9	1,248.5	66	4,997	4.5
Peri-urban	Gwacheon	Gwacheon	Residential area	37° 25'N	126° 59'E	SO <sub>2</sub> , NO <sub>2</sub> , CO, PM <sub>10</sub>	12.7	1,186.8	64	3,902	2.5
	Changwon	Changwon	Residential area	35° 14'N	128° 38'E	SO <sub>2</sub> , NO <sub>2</sub> , CO, PM <sub>10</sub>	14.9	1,248.5	66	4,997	2.0
Rural	Gosan	Jeju	Greenzone	33° 15'N	126° 12'E	SO <sub>2</sub> , NO <sub>2</sub> , CO, PM <sub>10</sub>	15.7	1,189.4	73	4,799	10.0

**Country :**

Classifi- -cation <sup>1</sup>	Name or Location of Sites <sup>2</sup>	City	Land Use	Coordinates		Monitored Items	Meteorological Data for Year 2001 (Average)				
				Latitude	Longitude		Temperature ( )	Precipitation (mm)	Relative Humidity (%)	Solar Radiation (MJ/l )	Wind Speed (m/s)
Urban											
Peri- urban											
Rural											

1 and 2 will be same as the sites (and city) of Table in previous Chapter 6.1.1 (Information of the cities where the AQM sites are)

## 7. Ambient Air Quality Data

It's the annual average concentration for Year 2000 and Year 2001.

Fill in the Table referring to the previous table (Chapter 2-AQM Summary of each country and Chapter 3-Measurement Methodology).

It's the background information on the AQ data.

### Year 2000

#### Country :

Classification <sup>1</sup>	Name or Location of Sites <sup>2</sup>	SO <sub>2</sub> (units)	NO <sub>2</sub> (units)	Dust		CO (units)	Monitoring Mode <sup>3</sup>	Measurement Interval <sup>4</sup>	Sampling Period <sup>5</sup>
				TSP (units)	PM <sub>10</sub> (units)				
Urban									
Peri-urban									
Rural									

Units of concentration can be ppb, ppm or  $\mu\text{g}/\text{m}^3$ . All the values used in either volume or weight concentration are assumed at standard temperature and pressure state if temperature and pressure state is not explicitly written, for the convenience of unit conversion.

1 and 2 will be same as the sites (and city) of Table in previous Chapter 6.1.1 (Information of the cities where the AQM sites are)

3. Automatic / manual / other ( )

4. Continuous/ hourly/ daily/ weekly/ monthly/ quarterly/ seasonal/ yearly/ other ( )

5. 1hr/ a day/ a week/ a month/ case by case/ other ( )

&lt; Sample &gt;

Year 2000

Country: ROK

Classification <sup>1</sup>	Name or Location of Sites <sup>2</sup>	SO <sub>2</sub> (ppm)	NO <sub>2</sub> (ppm)	Dust		CO (ppm)	Monitoring Mode <sup>3</sup>	Measurement Interval <sup>4</sup>	Sampling Period <sup>5</sup>
				TSP (-)	PM <sub>10</sub> (µg/m <sup>3</sup> )				
Urban	Shinseol	0.007	0.033	-	64	1.3	Automatic	Continuous	1hr
	Gwangbok	0.011	0.028	-	49	0.4	Automatic	Continuous	1hr
Peri-urban	Gwacheon	0.009	0.027		75	1.0	Automatic	Continuous	1hr
	Changwon	0.006	0.019		46	0.6	Automatic	Continuous	1hr
Rural	Gosan	0.002	0.004	-	36	0.2	Automatic	Continuous	1hr

Units of concentration can be ppb, ppm or µg/m<sup>3</sup>. All the values used in either volume or weight concentration are assumed at standard temperature and pressure state if temperature and pressure state is not explicitly written, for the convenience of unit conversion.

1 and 2 will be same as the sites (and city) of Table in previous Chapter 6.1.1 (Information of the cities where the AQM sites are)

3. Automatic / manual / other ( )

4. Continuous/ hourly/ daily/ weekly/ monthly/ quarterly/ seasonal/ yearly/ other ( )

5. 1hr/ a day/ a week/ a month/ case by case/ other ( )

**Year 2001****Country :**

Classification <sup>1</sup>	Name or Location of Sites <sup>2</sup>	SO <sub>2</sub> (units)	NO <sub>2</sub> (units)	Dust		CO (units)	Monitoring Mode <sup>3</sup>	Measurement Interval <sup>4</sup>	Sampling Period <sup>5</sup>
				TSP (units)	PM <sub>10</sub> (units)				
Urban									
Peri-urban									
Rural									

Units of concentration can be ppb, ppm or  $\mu\text{g}/\text{m}^3$ . All the values used in either volume or weight concentration are assumed at standard temperature and pressure state if temperature and pressure state is not explicitly written, for the convenience of unit conversion.

1 and 2 will be same as the sites (and city) of Table in previous Chapter 6.1.1 (Information of the cities where the AQM sites are)

3. Automatic / manual / other ( )

4. Continuous/ hourly/ daily/ weekly/ monthly/ quarterly/ seasonal/ yearly/ other ( )

5. 1hr/ a day/ a week/ a month/ case by case/ other ( )

&lt; Sample &gt;

Year 2001

Country : ROK

Classification <sup>1</sup>	Name or Location of Sites <sup>2</sup>	SO <sub>2</sub> (ppm)	NO <sub>2</sub> (ppm)	Dust		CO (ppm)	Monitoring Mode <sup>3</sup>	Measurement Interval <sup>4</sup>	Sampling Period <sup>5</sup>
				TSP (-)	PM <sub>10</sub> (µg/m <sup>3</sup> )				
Urban	Shinseol	0.005	0.037	-	73	0.8	Automatic	Continuous	1hr
	Gwangbok	0.010	0.032	-	57	0.4	Automatic	Continuous	1hr
Peri-urban	Gwacheon	0.010	0.026		68	0.8	Automatic	Continuous	1hr
	Changwon	0.006	0.029		53	0.8	Automatic	Continuous	1hr
Rural <sup>6</sup>	Gosan	(0.001)	(0.004)	-	(31)	(0.4)	Automatic	Continuous	1hr

Units of concentration can be ppb, ppm or µg/m<sup>3</sup>. All the values used in either volume or weight concentration are assumed at standard temperature and pressure state if temperature and pressure state is not explicitly written, for the convenience of unit conversion.

1 and 2 will be same as the sites (and city) of Table in previous Chapter 6.1.1 (Information of the cities where the AQM sites are)

3. Automatic / manual / other ( )

4. Continuous/ hourly/ daily/ weekly/ monthly/ quarterly/ seasonal/ yearly/ other ( )

5. 1hr/ a day/ a week/ a month/ case by case/ other ( )

6. It's not enough data [It's less than Data Capture Threshold (75%)]