

The Sixth Senior Technical Managers' Meeting  
of the Acid Deposition Monitoring Network  
in East Asia  
27-29 July 2005, Hanoi, Viet Nam

**Activities in line with  
“The Strategy Paper for Future Direction of Soil and Vegetation  
Monitoring of EANET”**

Network Center for EANET

1. Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET

The Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET was endorsed by the Scientific Advisory Committee at its Second Session (SAC2) in November 2002 in Bangkok, Thailand, with a few modifications for the final draft developed by the Task Force on Soil and Vegetation Monitoring.

The Strategy Paper describes that the following four items would be implemented as the milestones, which are reflected to the specific work plan for coming five years:

- Joint Workshop by ICP Forests and EANET: 2002
- Implementation of the next monitoring: 2002-2005
- Start of case studies in selected reference catchments: 2006
- Preparation of sub-manual on forest monitoring: 2005

Task Force has been promoting some of the above activities in line with the Strategy Paper, and the Network Center for EANET (NC) has been supporting their activities as the secretariat of the Task Force.

2. Clarification of sampling plan/schedule for soil and forest monitoring

For surely implementation of the next monitoring in the respective monitoring sites, detailed next sampling plan/schedule should be clarified based on the National Monitoring Plans. The following items should be described in the detailed plan:

- a) Monitoring sites: locations, soil types, and vegetation types
- b) Monitoring items: soil and/or forest
- c) Parameters: pH, exchangeable cations, exchangeable acidity, etc. for soil; general description of forests, survey of tree decline, etc.
- d) Monitoring year: 2003, 2004, 2005, 2006, and/or 2007
- e) Monitoring seasons and/or months: spring, summer, autumn, and/or winter; rainy season

or dry season; month

f) Organizations in charge of the sampling and analysis:

In this connection, Network Center (NC), as the secretariat of the Task Force, prepared a document "Sampling Plan/Schedule for Soil and Vegetation Monitoring of EANET 2003-2007", and the document has been updated based on the latest information several times. The document might be effective for implementation of the survey as well as informative for data compilation. The document will be updated as "Sampling Plan/Schedule for Soil and Vegetation Monitoring of EANET 2004-2008" for coming years.

Sufficient efforts should be made in the participating countries to implement the described plan for promotion of continuous monitoring. The document will be updated based on the latest information.

3. Discussion on sub-manual for forest monitoring in East Asia

EANET- ICP Forests Joint Workshop was held in Seremban, Malaysia in 2002 as one of the milestones described in the strategy paper, and some technical subjects for forest monitoring were clarified based on discussions at the workshop. Task Force and NC developed the document "Procedures and schedule for preparing sub-manual on forest monitoring in East Asia (EANET/SAC3/8/2/Annex3)" taking these technical subjects into account. Task Force and NC are preparing the sub-manual according to the procedures and schedule.

Contents and the leading authors of the sub-manual were decided in March 2004, and the manuscripts are under preparation by the leading authors. Most of manuscripts have been prepared and now being edited for the reviewing. The manuscripts will be reviewed by Task Force Members as well as SAC Members. An international workshop is expected to be organized in cooperation with ICP Forests for the reviewing process in 2006, and then, the sub-manual is expected to be endorsed at SAC6 in 2006.

## **Sampling Plan/Schedule for Soil and Vegetation Monitoring of EANET 2004-2008 (As of July 2005)**

Network Center for EANET

### **1. Introduction**

The Strategy Paper for Future Direction of Soil and Vegetation Monitoring of EANET was prepared by the Task Force on Soil and Vegetation Monitoring to promote activities toward the initial and ultimate objectives. The Strategy Paper describes issues to be implemented for the objectives and specific work plans for coming years. The Strategy Paper was endorsed by the Second Session of Scientific Advisory Committee (SAC2) in Thailand in November 2002, and activities in line with the Strategy Paper are being promoted.

Continuous monitoring in accordance with the Technical Manual is one of the issues to be implemented for achievement of the initial objective, "establishment of baseline data", which was described in the Strategy Paper. As the first step on continuous monitoring, the next sampling/observation activities should surely be carried out according to the Technical Manual. In most monitoring sites, the next sampling would be carried out from 2003 to 2007 because the previous samplings were done at least once from 1999 to 2002 meanwhile the monitoring interval was adopted as 3-5 years. Therefore, implementation of the next sampling was described as one of the milestones for coming five years (2003-2007), and clarification of detailed next sampling plan was proposed among the specific work plans in the Strategy Paper.

The document was effective for surely implementation of the survey in the respective monitoring sites as well as informative for data compilation in Network Center. The document will be updated based on the latest information. Sufficient effort should be made in the respective monitoring sites for implementation of the survey as scheduled.

### **2. Description of the sampling plan**

The detailed plan for the respective monitoring sites should be clarified based on the National Monitoring Plans. The following items should be described in the detailed plan:

- a) **Monitoring sites:** locations, soil types, and vegetation types
- b) **Monitoring items:** soil and/or forest
- c) **Parameters:** pH, exchangeable cations, exchangeable acidity, etc. for soil; general

description of forests, survey of tree decline, etc.

- d) **Monitoring year:** 2003, 2004, 2005, 2006, and/or 2007
- e) **Monitoring seasons and/or months:** spring, summer, autumn, and/or winter; rainy season or dry season; month
- f) **Organizations in charge of the sampling and analysis**

### 3. Summary of sampling plan/schedule in the individual monitoring sites 2004-2008

Country	Organization <sup>*1</sup>	Area (Name of nearest deposition monitoring site)	Name of individual monitoring site	Soil type (by FAO/UNESCO)	Forest type (major species)	Latest monitoring/sampling <sup>*1</sup>	Next sampling schedule and items <sup>*1</sup>	Monitoring interval
China	S, F) Chongqing Institute of Environmental Science	Chongqing	Chongqing	Not reported	Not reported	2000 (S) 2003 (S, F)	<b>2006 (S, F)</b>	<b>3 year</b>
	S, F) Xiamen Environmental Monitoring Central Station	Xiamen	Xiamen - Xiaping	Not reported	Man-made forest ( <i>Michelianmacclurei dandyar, Fokienia hodginsii, Pinus massoniana</i> )	2000 (S, F) 2003 (S, F)	<b>2006 (S, F)</b>	<b>3 year</b>
	S, F) Xi'an Environmental Science	Jiwozi (Xi'an)	Xi'an - Jiwozi	Not reported	<i>Larix gmlini Rupr</i>	2001 (S) 2003 (S, F)	<b>2006 (S, F)</b>	<b>3 year</b>
	S, F) Zhuhai Environmental Monitoring Station	Zhuxiandong (Zhuhai)	Zhuhai - Zhuxiandong	Not reported	<i>Acacia auriculiformis, A. confusa, Dicranopteris dichotoma, Pinus elliotii</i>	2000 (S, F) 2001 (S) 2003 (S, F)	<b>2006 (S, F)</b>	<b>3 year</b>
Indonesia	S, F) Soil and Agro Climate Research Development Center, (EMC)	EMC	Serpong <sup>*2</sup>	Not decided	Not decided	Not started		<b>3 years</b>
			Bogor Research Forest	(Typic Dystrudepts) <sup>*3</sup>	Man-made forest ( <i>Hopea mengarawan, Khaya anthotheca</i> etc.)	2001 (S)		<b>3 years</b>

		Medan <sup>*2</sup>				Not started		
		Manado <sup>*2</sup>				Not started		
		Palangkaraya <sup>*2</sup>				Not started		
Japan	S) Gifu Research Center for Public Health F) Forest Science Research Institute, Gifu Prefecture	Ijira	Lake Ijira	Dystric Cambisols	Man-made forest ( <i>Cryptomeria japonica</i> , <i>Chamaecyparis obtuse</i> etc.)	2000 (S, F) 2003 (F) <u>2004 (F)</u> <sup>*8</sup>	<b>2006 summer (S, F)</b>	<b>3-5 years</b>
			Yamato	Andosols	Man-made forest ( <i>Chamaecyparis obtuse</i> )	<u>2004 (F)</u>	<b>2006 summer (S, F)</b>	<b>3-5 years</b>
	S) Agricultural Experimental Station, Shimane Prefecture F) Forestry Technology Cener, Shimane Prefecture	Banryu	Banryu-2 <sup>*4</sup>	Cambisols	Secondary forest ( <i>Symplocos lucida</i> , etc.)	2000 (F) 2001 (S, F) 2003 (F) <u>2004 (F)</u>	<b>2006 summer (S, F)</b>	<b>3-5 years</b>
			Iwami “rinku” Factory Park <sup>*4</sup>	(Acrisols) <sup>*5</sup>	Secondary forest ( <i>Castanopsis cuspidate</i> , etc.)	2001 (S, F) 2003 (F) <u>2004 (F)</u>	<b>2006 summer (S, F)</b>	<b>3-5 years</b>
Malaysia	S) Universiti Putra Malaysia F)	-	Pasoh Reserve Forest	Dystric Nitosols/ Rhodic Ferralsols	Natural forest	2000 (S) <i>2004 August &amp; November (S)</i> <sup>*7</sup>	<b>2007 August (S)</b> <b>2007 November (S)</b>	<b>3 years</b>
		Petaling Jaya	Sungai Lalang Reserve Forest	Dystric Nitosols/ Rhodic Ferralsols	Secondary forest	<i>2001 (S)</i> <i>2004 August &amp; November (S)</i>	<b>2007 August (S)</b> <b>2007 November (S)</b>	<b>3 years</b>

Mongolia	S) Central Laboratory for Environmental Monitoring F) National University of Mongolia (NUM), Department of Forestry	Ulaanbaatar	Bogdkhan Mountain *2	Not reported	Natural forest ( <i>Larix sibirica</i> )	Not started	<b>2005 August (S, F)</b>	<b>3-5 years</b>
Philippines	S, F) University of the Philippine, Los Banos	Los Banos	Mt. Makiling	Eutric Cambisols	Secondary forest ( <i>Celtis luzonica</i> Warb, etc.)	2000 (F) 2002 (S) 2004 October (S, F)		<b>3 years</b>
			UP Quezon, Land Grant	Dystric Nitosols	Secondary forest	2001 (S, F) 2004 October (S, F)		<b>3 years</b>
Republic of Korea	S, F) National Institute of Environmental Research	Imsil	Mt. Naejang	Not reported	Secondary forest ( <i>Pinus densiflora</i> , <i>Pinus rigida</i> , <i>Styrax japonica</i> , <i>Prunus maximowiczii</i> )	2001 (S, F)		<b>3 years</b>
Russia	S) Laboratory of Hydrochemistry and Atmospheric Chemistry, Limnological Institute of RAS/SD	Irkutsk	Irkutsk	Eutric Regosols/ Calcaric Luvisols	Man-made forest ( <i>Pinus sylvestris</i> , <i>Betula pendula</i> )	2001 (S, (F)) 2003 (F)		<b>3-5 years</b>
		Listvyanka	Bolshie Koty	Mollic Leptosols/ Umbric Leptosols	Natural forest ( <i>Pinus sylvestris</i> , <i>Populus tremula</i> , etc.)	2000 (S) 2002 (F)	-	<b>3-5 years</b>

	(Irkutsk) <b>F)</b> Siberian Institute of Plant Physiology and Biochemistry, RAS/SD (Irkutsk)		Pereyomnaya river catchment	Gelic Podzols/ Dystric Leptosols	Natural forest ( <i>Pinus sibirica</i> , <i>Picea sibirica</i> , and <i>Abies sibirica</i> )	-	<b>2005 July (S, F)</b>	<b>3-5 years</b>
		Mondy	Ilchir Lake	Gelic Podzols/ Gelic Gleysols	Not reported	1999 (S)	-	<b>3-5 years</b>
			Okinskoe Lake	Gelic Podzols	Not reported	1999 (S)	-	<b>3-5 years</b>
			Solar Observatory	Calcic Gleysols	Natural forest ( <i>Larix sibirica</i> )	1999 (S) <u>2004 July (F)</u>		<b>3-5 years</b>
		Primorskaya	Primorskaya	Mollic Leptosols/ Umbric Leptosols	Natural forest ( <i>Quercus mongolica</i> , <i>Betula daurica</i> , etc.)	2004 July (S)	<b>2005 July (F)</b>	<b>3-5 years</b>
Thailand	<b>S)</b> Department of Agriculture, <b>S)</b> King Mongkut's University of Technology Thonburi <b>F)</b> National Park, Wildlife and Plant Conservation Department	Vachiralongkorn Dam (old name: Kao Lam Dam) *6	Vachiralongkorn Dam	Ferric Acrisols	Secondary forest ( <i>Xylia xylocarpa</i> ,)	2000 (S, F) 2001 (S, F) 2002 (S) 2003 April, December (S, F)	<b>2006 April and August (S, F)</b>	<b>3 years</b>
			Vachiralongkorn Puyea	(Now analyzing)	Secondary forest ( <i>Dipterocarpus turbinatus</i> )	2002 (S, F) 2003 April, December (S, F)	<b>2006 April and August (S, F)</b>	<b>3 years</b>
Viet Nam	<b>S, F)</b> Institute of Meteorology and Hydrology (joint with National Institute of Forest)	Hoa Binh	Cave of Heaven	Ferric Acrisols	Man-made forest ( <i>Pinus sp.</i> )	1999 (S, F)	-	<b>3-5 years</b>
			Thang Ranh	Ferric Acrisols	Man-made forest ( <i>Acacia auriculiformis</i> )	1999 (S, F)	-	<b>3-5 years</b>

\*1. Items are abbreviated as follows: S, Soil monitoring; F, Forest monitoring \*2. New sites, Serpong, Medan, Manado and Palangkaraya in Indonesia, and Bogdkhan



Mountain in Mongolia, will be established in the near future. \*3. Classification by FAO/UNESCO has not been reported. \*4. The sites around Banryu deposition site were relocated in 2001. \*5. Further analysis should be carried out for correspondence to accurate FAO/UNESCO classification. \*6. Kao Lam Dam was renamed to Vachiralongkorn Dam. \*7. Italic data have not been submitted to the Network Center. \*8. Underlined data will be published in Data Report 2003.

**Reporting Form for Sampling Plan/Schedule of Soil and Vegetation Monitoring  
(2004-2008)**

<b>Items</b>	<b>Examples for description</b>	<b>Sampling Plan/Schedules</b>
<b>a) Monitoring sites</b>	Locations (Area (the nearest deposition monitoring site), Name of individual sites)	
	Soil type (by FAO/UNESCO)	
	Vegetation (forest) type: Natural forest, Secondary forest, or Man-Made forest	
<b>b) Monitoring items</b>	Soil and/or forest	
<b>c) Parameters</b>	Mandatory Parameters for soil: Moisture content, pH, exchangeable base cations, exchangeable acidity, etc.	
	General description of forests, and/or survey of tree decline	
<b>d) Monitoring year</b>	2003, 2004, 2005, 2006, and/or 2007	
<b>e) Monitoring seasons and/or months</b>	Spring, summer, autumn, and/or winter; rainy season or dry season; month	
<b>f) Organizations in charge of the sampling and analysis</b>	Name of organization, Department, etc.	
<b>g) Others</b>	Monitoring interval (if it changed), etc.	

The form would be prepared for the respective monitoring sites. Information on a), c) and f) above has already been described in the National Monitoring Plan, and the same descriptions would be filled in the form if they were not changed.