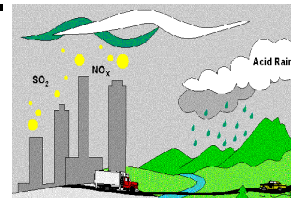


ACID RAIN IN ASIA

NEWSLETTER



Bi-monthly reports on Acid Rain and Emissions Reduction related issues in Asia and the Pacific published by by UNEP/EAP-AP, Bangkok in close collaboration with ADB,

JUNE - JULY 1998

Volume 2, Issue 3

FIRST NATIONAL WORKSHOPS ON ACID RAIN AND EMISSIONS REDUCTION IN ASIA

July, 1998

As part of the RETA: 5702 project entitled *Acid Rain and Emissions Reduction in Asia, Phase II*, the first three national workshops were held recently in each of the primary participating Developing Member Countries (DMCs), namely: Beijing (People's Republic of China), Jakarta (Indonesia) and New Delhi (India). The workshops were successfully organized by *The Administrative Center for China's Agenda 21 (ACCA21)* in Beijing, *Environment Management Center (PURSARPEDAL)* in Jakarta, and *Tata Energy Research Institute (TERI)* in New Delhi. *UNEP Environment Assessment Program for Asia and the Pacific (UNEP EAP-AP)* coordinated these workshops and the financial support was provided by *Asian Development Bank (ADB)*.

These workshops were attended by their country's high-level policy makers from the environment agencies and senior technical experts involved in energy, power and other industries. Also, resource representatives from ADB, UNEP EAP-AP, Asian Institute of Technology (AIT), and Resource Management Associates (RMA) attended the workshops.

The first national workshop provided:

- demonstration and training of the inputs, outputs, and use of the RAINS-ASIA model as a management tool;
- brief information on acid rain related issues in the region and upcoming project activities; and
- discussion with the participants on the transboundary transport of acid rain causing emissions (ARCEs) and need for the regional cooperation to address the problem.

Some of the main issues discussed during the workshop were:

- Country should be able to use the model for the policy analysis;
- Date collection and update;
- Better documentation of technical manuals and model's program (codes) details;
- Create acid rain resource center in the region;
- Build local expertise in acid rain modelling issues in Asia;

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First National Workshops Participating National Organizations/Institutes

Beijing Workshop, People's Republic of China

Ministry of Science and Technology (MOST)
State Environment Protection Administration (SEPA)
Administrative Center for China's Agenda 21 (ACCA21)
Institute of Electricity Power Design of North China
Chinese Electric Commission
Ministry of Metallurgical Industry
Development Planning Commission (SDPC)
Chinese Research Academy of Environmental Sciences (CRAES)
Chinese Research Academy of Meteorological Science
China Institute of Nuclear Industry Economics
Beijing University
Tsing Hua University
Chinese Academy of Sciences (CAS)
Chongqin Research Institute of Environment Sciences
Nanjing University
Shanghai Institute of Meteorological Science
Sichuan Environmental Engineering Evaluation Center
Chinese Institute of Water Resources Hydropower Research (IWHR)
Nanjing Environmental Protection of Electric Power Research Institute
Ministry of Electric Power
Research Institute of Chemical Defense

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Coal Combustion Research Institute
Power Test Institute of Guangdong Power Ministry

Jakarta Workshop, Indonesia

Air Pollution Department
Environment Impact Management Agency
State Electricity Enterprise, Suralaya
National Aeronautical and Aviation Board
Department of Mining and Energy
Environment and Human Settlement
Environmental Laboratory Development, Enterprise PT. PLN, Jaksel
K Krakatau Steel Ltd.
State Electricity Enterprise, Jakarta
Regional BAPEDAL I, II and III
Riset and Energy Laboratory, BPTT
Board Geophysics and meteorology
Center of Environmental and Health Technology
National Atomic Board
Environment Management Center
Ministry of Environment

New Delhi Workshop, India

Department of Science and Technology
Banaras Hindu University (BHU)
Ministry of Environment and Forests (MoEF)
National Physical Laboratory
International Resources Group (IRG)
National Environmental Engineering Research Institute (NEERI)

- *Review on the acid deposition model of China* by Dr. Pu Yifen, LAPC, Institute of Atmospheric Physics, Chinese Academy of Sciences (CAS); and
- *Comprehensive evolution of control technology or reduction of sulfur dioxide emission* by Prof. Xu Xuchang, State Key Laboratory of Clean Combustion, Tsinghua University.

Mr. Collin Green from RMA conducted the hands-on training on major features of RAINS-ASIA and RESGEN models to about 50 participants. He was assisted by Mr. Sunil Malla from UNEP EAP-AP. Prof. Mario Tabucanon from AIT presented technical paper on *Technology forecasting for reducing ARCEs in Asia*. Mr. Malla summarized the current air pollution issues in the region and on-going activities of the project. The workshop was concluded by final remarks from

People's Republic of China is the world's third largest producer of sulfur dioxide; very little of its coal is cleaned, so the smoke and ash from homes and factories make air pollution a hazard in every major city. In 1981, Shanghai had its first recorded acid rain storm.

**First National Workshop on
Acid Rain and Emissions Reduction in Asia
20-21 July 1998**

**The Administrative Center for China's Agenda 21 (ACCA21),
Beijing, People's Republic of China**

The workshop was formally opened by keynote speeches from Mr. Wang Weizhong, Director General, ACCA21 and Dr. EAR Ouano, Senior Environment Specialist, ADB. Mr. Weizhong noted that ARCEs such as sulfur dioxide and nitrogen oxides are one of the major problems of air pollution in China and coal is the biggest single source of energy contributing 75 per cent of production and consumption of total primary energy. And coal consumption will increase in future along with the Chinese economic growth. He suggested that intensified research on the emissions of acid rain causing air pollutants and its transboundary effects, assessment of damage to ecosystems, and mitigation strategies is required. He also highlighted the current initiatives and measures taken by the Chinese government on acid rain problem in China.

Dr. Ouano gave the second keynote speech. He briefly highlighted the on-going Acid Rain Phase II project activities. He noted that acid rain is one of the more documented results from anthropogenic gaseous emissions. He also mentioned that the RAINS-ASIA model is still very rudimentary and the World Bank is currently preparing a more accurate model, which hopefully will be available before the end of 1998. However, he suggested that we should start the practice of using simple tools that could build their skills. He requested all the participants to solicit ideas, comments and suggestions from the users as to how the RAINS-ASIA model could be improved and its utility expanded.



The technical papers presented by local experts on acid rain related issues in China were:

- *Current situation of acid rain in China and its two-controlling Regional policy* by Mr. Cai Fahe, Director of Center for Environmental Planning and Assessment, Chinese Research Academy of Environmental Sciences, SEPA;
- *Review on the acid deposition model of China* by Dr. Pu Yifen, LAPC, Institute of Atmospheric Physics, Chinese Academy of Sciences (CAS);
- *Local conditions for current situation of acid rain in China and its two-controlling regional policy* by Mr. Cai Fahe, Director of Center for Environmental Planning and Assessment, Chinese Research Academy of Environmental Sciences, SEPA;

**First National Workshop on
Acid Rain and Emissions Reduction in Asia
23-24 July 1998**

Environmental Management Center (EMC), PUSARPEDAL, BAPEDAL Serpong, Jakarta, Indonesia

The workshop was inaugurated by Ir. T. Sachrul Ismail, Head of PUSARPEDAL followed by keynote speeches from Dr. RTM Sutamiharja, National Coordinator for Indonesia under Acid Rain Project Phase II, and Dr. EAR Ouano, Senior Environment Specialist, ADB. The opening speech was given by executive secretary to the Minister, Environment State Ministry, Indonesia.

The technical papers presented by local experts on acid rain related issues in Indonesia were:

- *Activity of acid rain monitoring in Indonesia* by Dr. Agus Saefudin, Senior Laboratory Division, EMC, PUSARPEDAL, BAPEDAL; and
- *Indonesian Case Study using RAINS-ASIA and RESGEN models* by Ms. Rina Aprishanty, EMC, PUSARPEDAL, BAPEDAL.

Dr. A. Utsunomiya, FISHERS, Japan provided information on acid deposition monitoring network activities in East Asia. Mr. Collin Green from RMA conducted the hands-on training on major features of RAINS-ASIA and RESGEN models to about 35 participants. He was assisted by Mr. Sunil Malla from UNEP EAP-AP. Dr. Ram M. Shrestha from AIT presented technical paper on *Policy Options and Demand Side Management for reducing ARCEs in Asia*. Mr. Malla summarized the current air pollution issues in the region and on-going activities of the project. The workshop was concluded by final remarks from the representatives of ADB and PUSARPEDAL.

**First National Workshop on
Acid Rain and Emissions Reduction in Asia
27-28 July 1998**

**Tata Energy Research Institute (TERI)
New Delhi, India**

The workshop started with keynote addresses from Dr. GK Pandey, Director, Pollution Control Department, Ministry of Environment and Forests followed by Dr. PV Sridharan, National Coordinator for India for Acid Rain Project Phase II, TERI and Dr. EAR Ouano, Senior Environment Specialist, ADB.

Dr. Pandey noted that air pollution levels have indicated an increasing trend in urban areas mainly due to rise in vehicular population, indiscriminate industrialization and urbanization. However, he mentioned that the problem of acid rain has not yet been experienced in India. He concluded that Government of India has already taken a number of steps to mitigate pollution problems. An action plan for Delhi has already been prepared and is under implementation. Similar action plans have been proposed to be prepared soon for Chennai, Calcutta and Mumbai. A national action plan for control of pollution in the country has also been prepared and is likely to be finalized shortly.

The technical papers presented by local experts on acid rain related issues in India were:

- *Acid rain – case study for* by Dr. TS Panwar, TERI;
- *Deposition and Dispersion aspects of RAINS-ASIA* by Dr. Manju Mohan, Indian Institute of Technology- New Delhi; and
- *Results of the BAPMon programme* by Dr. B. Mukhopadhyay, Indian Meteorological Department, New Delhi.

Mr. Collin Green from RMA conducted the hands-on training on major features of RAINS-ASIA and RESGEN models to about 20 participants. He was assisted by Mr. Sunil Malla from UNEP EAP-AP. Mr. Malla also summarized the current air pollution issues in the region, in particular, Male' Declaration and its implementation plan and on-going activities of the project. The workshop was concluded by final remarks from the representative of ADB.

Acid Rain In India: Air Pollution-levels of Precursor Gases (SO₂ and NO_x)

The principal precursors of acid rain are emissions of SO₂ and NO_x, whose main anthropogenic sources are activities like industries and vehicular traffic. As urban areas are the main centers for such activities, the levels of SO₂, NO_x and suspended particulate matter (SPM) at these locations will indicate how far they are affected by pollution sources. The Central Pollution Control Board (CPCB) has established a National Ambient Air Quality Monitoring Network (NAAQM), which has a sanctioned strength of 290 monitoring stations covering 92 cities/towns. Based on the analysis of the ambient air quality data for 1995, critical levels of SO₂ were observed in the cities of Surat and Howrah, NO_x in Delhi and Howrah and SPM in almost all the cities of Bihar, Gujarat, Himanchal Pradesh, Madhya Pradesh, Rajasthan, West Bengal, Delhi, and Union Territory of Pondichary (CPCB, 1997). The representation of air quality data has been in terms of low,

Fig. 1. Distribution of monitoring Locations

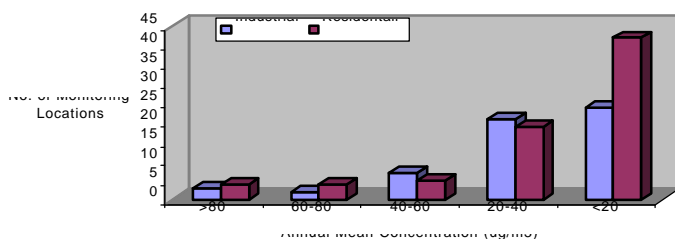
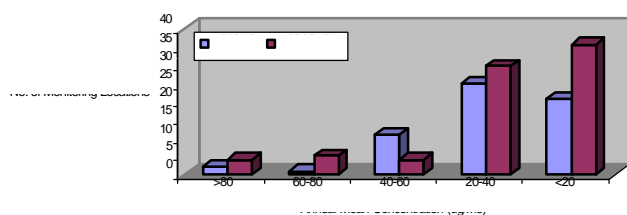


Fig. 2. Distribution of monitoring locations (NO_x)



moderate, high and critical based on the notified ambient air quality standards for different pollutants and area classes.

Figure 1 represents the distribution of monitoring stations according to the annual mean concentration of SO₂ during 1995. The annual mean concentration of SO₂ violated the annual standards at 3 industrial, 8 residential and 1 sensitive location. At all other locations, the annual mean concentration conformed to the respective standards. Likewise, figure 2 represents the distribution of monitoring locations according to the annual mean concentration of NO_x. During 1995, the annual mean standards were violated at 2 industrial, 9 residential and 1 sensitive location. It may be noted that the annual average ambient air quality standards for both SO₂ and NO_x are 15, 60 and 80 μg/m³ for sensitive, residential/rural, and indus-

Acid Rain News in Thailand

Following the Electricity Generating Authority of Thailand's (EGAT) planned expansion of its Mae Moh power plant (from 2025 MW in 1992 to 5025 MW by 2005), it commissioned in 1990 a programme of research to study the effects of acid rain deposition in Northern Thailand. The research was conducted by a consortium of Thai and Canadian consulting firms, with analytical work performed by Chiang Mai University.

The programme consisted of the identification of sites in northern Thailand which were "significantly" or "highly" susceptible to acidification, based upon their natural buffering capacity. Areas with significant and high acid deposition were also identified, based respectively upon wet sulphur depositions of 20-30 and > 30 kg/ha/rainy/rainy season. The pH and acid neutralizing capacity (ANC) of streams in the areas were determined. In addition, 15 precipitation samplers established throughout northern Thailand to record the levels of sulphate and nitrate in the precipitation over 12 months. The Hydro-Quebec (HG-LRT) model was modified for low wind and complex terrain mesoscale use. Two scenarios were considered; one, base don no sulphur controls fitted, with total sulphur emissions of 12 M tons between 1990 and 2030 and the other with the proposed control technology fitted, with total emissions of 2.9 M tons over the same period.

The final report was published in 1994. It concluded that the current emissions from Mae Moh resulted in downwind sulphate deposition enhancement of between 3 and 6 times, compared with the estimated background rates. In some locations, sulphate precipitation levels in excess of 1.5 kg/ha/rainy season. Values for nitrate were much lower, at about 5 per cent those of sulphate on average. Based on present expansion plans and with no emission controls, the area of high acid deposition was expected to increase until 2006, to a total area of 9,000 km², whilst the area with significant deposition would increase to 7,000 km² by 1010. For the scenario with emission controls fitted from 1995-6, only a very small area would receive high depositions. The area with significant deposition would be expected to show a large decrease after 2000.

In North America, a guideline value of 200 meq/l ANC is used as an indicator of surface

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water sensitivity to acidification, although the report considered that such a value was much too low for use in Thailand. However, it was estimated that virtually no streams in northern Thailand had an ANC of ≤ 200 meq/l and most were in fact considerably higher. About 66% of streams in the sensitive area had an ANC of > 700 meq/l sufficiently high to keep site above pH 6 under maximum projected levels of emissions. About 95% of streams in the sensitive area have an ANC of ≤ 350 meq/l, sufficient to keep sites above pH 6, with the emission using the planned control measures. For northern Thailand as a whole, about 73-32% of streams have an ANC of $> 1,000$ meq/l and about 35% have an ANC of $> 2,000$ meq/l. the report considered that these ANC levels were sufficiently high as to prevent streams near to Mae Moh acidifying to a pH above 6 with and without emission controls respectively.

The report recommended that monitoring should continue, at least for the next 5-10 years to verify that the emission strategy is not yielding deposition levels above the target load. It further recommended that such monitoring should form part of a national network, under the control of a single agency. Increasing the size of valid deposition data was also of high priority, with associated refined modelling. Research to determine exact goals for prescribed sulphates and nitrates deposition levels in northern Thailand was considered very important.

THE REGION IN CRISIS – Implications for the environment

The Region in General

The environmental issue is considered long term and government policy remains generally unaffected by the economic crisis. However, in the countries hardest hit by the downturn, environmental policies that present a cost to industry are being delayed. In addition capital spending programmes for wastewater, solid waste and air pollution in Indonesia, Thailand and Malaysia have been cut as these countries rely heavily on imported technology and services for key components of their environmental projects. Foreign aid projects, mostly budgeted in USD, European currency or Yen, are not feeling the impact of the crisis so directly. They will see their spending power in local terms rise dramatically in countries where the currency has depreciated. However, where funding is channeled through state agencies, liquidity pressures may lead to delays in payment. Plans to gain ISO 14001 certification among corporate Asia remain mostly unchanged. Most regard this as an export necessity and even more urgent now as they attempt to export their way out of the slump.

Indonesia

As the currency continues to collapse and business confidence slumps, Indonesian companies are treating environmental issues as a low priority. The freezing of most new private-sector industrial or domestic development has meant the suspension of demand for environmental infrastructure products and services. The depreciation of local currency should not be a problem for aid-funded projects, but there is concern that aid money is being diverted by the government to fill the gaps in its hard currency supply. Malaysia The lack of private-sector financing is thought to be delaying the progress of some key privatization programmes, including the solid-waste concessions which were awarded in 1996.

Thailand

The Office of Environmental Policy and Planning has cut the government's budget for environmental infrastructure in the wake of the economic crisis, by one third to Baht 3 bn. Only priority wastewater and solid waste projects will go ahead (water treatment plants in Hat Yai, Pattaya, Phuket and Samut Prakan and a municipal solid waste plant in Chiang Mai). Canadian consortium Canora reports that its plans to develop the infrastructure for a major industrial estate have ground to a halt and that the depreciation of the Thai currency has prevented agreement with the Thai government on an air-quality-monitoring project. The collapse of the private-sector environmental market has led many environmental companies to refocus their business strategies towards the safety of aid-funded projects.

Philippines

The Philippines has so far escaped the worst of the region's financial crisis. The country's badly
(Continued on page 6)



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(Will be operational soon.....)**

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needed water supply projects remain on track. Moreover, foreign-exchange risks were covered by the contracts for a major water project in Manila. But major capital projects requiring foreign-currency expenditure will be under pressure.

Singapore

Singapore's environmental planning and investment is long term and a well-established part of government policy. The regional crisis has had some impact, however. Health and Environment Minister Yeo Cheow Tong said in February this year that some new environmental programmes might have to be put on hold, in particular the proposed new, national sewerage system.

South Korea

The Korean Parliament will announce the fate of specific ministries and programmes in early March this year, but the new budget is expected to significantly reduce the scope of the five-year 32-trillion-won environmental investment initiative that was announced in 1997. Cuts are predicted for air, water and waste-management projects. The merger of some ministries could also see the curtailment of further projects, now as they attempt to export their way out of the slump.

Taipei, China

Taipei, China has been largely unaffected by the economic crisis. Many Taiwanese companies are in a predatory mood as they see this period as an opportunity to acquire assets cheaply.

Japan

Japanese aid budgets have been slashed 10% across the board as a money-saving measure, but the environmental component remains unaffected. Elsewhere, environmental investment and spending by the government and corporate sector is up as Japan regards corporate and global environmental issues as important competitive issues following the high profile COP3 meeting in Kyoto.

People's Republic of China

China has been spared the economic turmoil around it, for the time being. As yet, there has been no visible effect on China's environmental policy or its environmental-investment programme. Indeed, the economic crisis in the region has encouraged the Chinese leadership to increase the pace of its own reform, especially in the banking sector. This may have knock-on effects for urgent price reforms for water, waste and pollution fees.

Hong Kong, China

Most observers agree that Hong Kong will be saved from recession this year by healthy gov-

PEOPLE'S REPUBLIC OF CHINA - AIR POLLUTION INTENSITIES

The industrial pollution intensities have been produced by the "Economics of Industrial Pollution Control" team of DECRG in the World Bank using the China Environment Yearbooks for 1992, 1994, and 1996. These yearbooks were produced by China's State Environmental Protection Agency (SEPA).

The dataset provides air pollution intensities for dust, smoke and sulfur dioxide (SO₂). The units of measurement for value of output are kilograms per 1000/RMB Yuan. (RMB Yuan (Renminbi Yuan) is the Chinese currency. For the purposes of this exercise, no comparisons of RMB Yuan and the US dollar were made during the sample years of 1991, 1993 and 1995 due to volatility in exchange rates. The value of output are at constant 1990 prices.) The plant sample size was 67,820 for 1991, 64,538 for 1993, and 65,736 for 1995. The sample size is the same for all the pollutants. The pollution intensities are at the 2 digit ISIC level.

(Current information about these data and related dataset is available at <http://www.worldbank.org/nip/> If you wish to use this information, please cite the World Bank's DECRG-IE division as the source.)

China Industrial Pollution

Air Pollution Intensities*

Sector	ISIC	SO ₂			Smoke			Dust		
		1991	1993	1995	1991	1993	1995	1991	1993	1995
Food, Beverages and Tobacco	31	3.37	2.40	1.99	2.89	3.71	1.47	0.25	0.24	0.12
Textile	32	2.24	1.81	1.44	1.34	1.03	0.79	0.09	0.03	0.03
Paper	34	5.99	5.78	5.38	4.99	5.81	3.62	0.60	0.78	0.46
Chemical Products	35	4.36	3.69	3.33	2.56	2.06	1.83	0.88	0.80	0.56
Building & Non-Metal Products	36	17.42	13.02	10.56	11.88	8.97	6.49	61.96	40.73	39.62
Iron and Steel	37	6.60	5.99	5.55	2.86	2.34	2.10	6.00	5.67	4.28
Metal Products	38	1.17	0.76	0.54	0.95	0.53	0.39	0.25	0.14	0.07
Other Products	39	2.62	1.55	1.21	2.82	1.68	0.82	0.81	0.73	0.37

* These intensities were calculated by the World Bank's "Economics of Industrial Pollution Control" team.

If you wish to use this data, please cite the DECRG-IE division of the World Bank as the source.

India is a major coal user ; its annual sulfur dioxide emissions have approximately tripled in the last 20 years. Every major city in India is affected by pollution, and crops which the country can ill afford to lose are beginning to show the signs of acid damage.

The Press

The Earth Times, an independent daily Internet newspaper on environment and development. They have links to news and information about each continent.

<http://www.earthtimes.org/>

Environment Matters is a publication from the Environment Department of the World Bank. The magazine and the department's Web site provide some of the Bank's perspectives on pollution management, environmental management and legal frameworks in the developing world. <http://www-esd.worldbank.org/envmat/>

The UNEP offers a bimonthly magazine on the environment and sustainable development called Our Planet. Recent issues have covered "the 25 years of UNEP", "Food", and "Culture, Values and the Environment". <http://www.ourplanet.com/>

The Asia Environmental Review is a monthly publication about business and environment in Asia. Visitors may read headlines in the current issues. Subscriptions and sample issues may also be secured through this site. <http://www.asianenviro.com/>

ENDS Environment Daily, started in 1978, is a monthly environmental journal for professionals in the business, regulatory, academic and campaigning communities. The on-line publication provides news, a directory of environmental consultants and jobs, among other items on their menu. <http://www.ends.co.uk/>

Environment Canada provides access to a great deal of environmental data, including a Pollution Data Branch Home Page and its National Pollutant Release Inventory. <http://www.ec.gc.ca/>

Government and International Agencies

The Globe Program is a worldwide network of students, teachers and scientists working together to study and understand the global environment.

<http://globe.fsl.noaa.gov/>

The United Nations, on-line at <http://www.un.org>, provides general information, but also allows access to its subscription databases of numerous social and economic indicators, information on international treaties, publications and an internal search engine.

U.S. Department of Energy, home page. Surfers may also visit DOE's Environment, Safety and Health Technical Information Services link. <http://www.doe.gov/>

The National Technical Information Service (NTIS) is the official resource for government-sponsored U.S. and worldwide scientific, technical, engineering and business-

related information and data. <http://www.ntis.org/>

The U.S. Agency for International Development's (USAID) work program on pollution prevention in the developing world. <http://es.epa.gov/ep3/>

Association of Environmental and Resource Economists (AERE) is an organization devoted to the exchange of ideas and information on environmental economics. AERE has an international membership of approximately 800 and publishes bi-annual its *Journal of Environmental Economics and Management*. <http://www.ecu.edu/econ/aere/>

Central European Environmental Data Request Facility is a repository of environmental data on central and eastern Europe with the purpose of promoting data exchanges. CEDAR acts as a host for a consortium of information providers. <http://pan.cedar.univie.ac.at/>

Economy and Environment Program for Southeast Asia (EEPSEA), Singapore based-group provides fellowships and research grants for training and research in environmental and resource economics for southeast Asian-based researchers. <http://www.idrc.org.ca/eeepsea/>

Resources for the Future is a non-partisan research organization which seeks to provide objective information and analysis to policy makers regarding long-range concerns on environmental economics. <http://www.rff.org/>

The World Conservation Union (IUCN) is a coalition of government agencies, NGO's and localities across 133 countries seeking to form global partnerships to promote conservation and sustainable development. Their web site has information on environmental law and sustainability issues. <http://www.iucn.org/>

The World Resources Institute is a policy research organization focused on global environment and development issues. A leading NGO in the U.S., WRI has done extensive research on environmental problems and their interaction with economic development and social policy.

<http://www.wri.org/>

EnviroLink is an on-line non-profit organization providing environmental resources to the Internet community. Among the free services offered are forums and discussion groups where people can express thoughts or exchange ideas and an education network which provides a clearinghouse of environmental education materials.

<http://www.envirolink.org/>

There are two web sites devoted to China and its environment. The Professional Association for China's Environment (PACE) is a coalition of activists interested in promoting environmental sustainable development in China. PACE is an ideal forum for networking of individuals involved on interested in China's environment. <http://www.chinaenvironment.net/>

Participating Countries of Acid Rain in Asia Project

A. Primary Participating Developing Member Countries (DMCs) and Executing Agencies:

1. People's Republic of China
2. India
3. Indonesia
4. Thailand

B. Other Participating DMCs/regions:

1. Bangladesh
2. Bhutan
3. Cambodia
4. Hong Kong, China
5. Lao, PDR
6. Malaysia
7. Myanmar
8. Nepal
9. Mongolia
10. Pakistan
11. Philippines
12. Republic of Korea
13. Singapore
14. Taipei, China
15. Vietnam

C. Participating Non-DMC

Upcoming Events

- **Second National Workshop** on "Acid Rain and Emissions Reduction in Asia" to be held tentatively in each of the four primary participating countries:

Beijing, PR of China	08-09 March 1999
Jakarta, Indonesia	11-12 March 1999
New Delhi, India	15-16 March 1999
Bangkok, Thailand	18-19 March 1999

- **Second Regional Seminar** on "Acid Rain and Emissions Reduction in Asia" to be held tentatively on 26-28 April, 1999 at Bangkok, Thailand.
- **Inception Workshop** on Implementation of Male' Declaration to be held tentatively during November 1998. The venue of the workshop is yet to be decided.

Further information on the activities of acid rain in Asia project may be requested from:

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