

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

First Training Course on Pollution Reduction  
in Coal-fired Power Plants in North East Asia

10 – 21 December 2001

Daejon, Republic of Korea

**Tentative Summary Report<sup>\*1</sup>**

1. The First Training Course on Pollution Reduction in Coal-fired Power Plants in North East Asia was held in Daejon, Republic of Korea, from 10 to 21 December 2001. The Training Course was organized jointly by ESCAP and the Korea Electric Power Research Institute (KEPRI), Republic of Korea, as the first event of the North-east Asian Training Centre on Pollution Reduction in Coal-fired Power Plants, which is established in KEPRI under auspice of the framework of the North-east Asian Subregional Programme on Environmental Cooperation (NEAPEC)
2. The Training Course was attended by trainees and national experts from China, Japan and Mongolia. The List of Participants is attached as Annex 1.
3. The lectures and on-site observations were conducted according to the Training Course Programme which was recommended by the Expert Group Meeting to Review the Draft Outline of the Training Manual on Pollution Reduction in Coal-Fired Power Plants (Ulaanbaatar, 28-29 October 1998) and subsequently endorsed by the Fifth Meeting of Senior Officials on Environmental Cooperation in North East Asia (Kobe, Japan, 24-26 February 1999). The Training Course Programme is attached as Annex 2. An additional presentation was made regarding dry desulfurization technologies by the Japanese participants.
4. The evaluation / review session was conducted at the end of the training course. The participants mostly expressed their satisfaction about the Training Course, and also expressed sincere gratitude to KEPRI and its staff for efficient arrangements for organization of the Training Course as well as for their warmest hospitality. The participants submitted evaluation / review reports to KEPRI and ESCAP, of which major elements are outlined in Annex 3.
5. A more comprehensive report will be prepared by KEPRI and submitted to the Mid-term Review Meeting for NEASPEC Projects as well as to the Eighth Meeting of Senior Officials on Environmental Cooperation in North-east Asia, which altogether are tentatively scheduled in June 2002 in Mongolia. The date and programme of the Second Training Course on Pollution Reduction in Coal-fired Power Plants in North East Asia will also be communicated by these Meetings.

-----

---

<sup>\*1</sup> / Note by the secretariat. A more comprehensive report will be prepared by KEPRI and submitted to the Mid-term Review Meeting for NEASPEC Projects and the Eighth Meeting of Senior Officials on Environmental Cooperation in North-east Asia, in June 2002 in Mongolia

12 December 2001

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

First Training Course on Pollution Reduction

In Coal-fired Power Plants in North-East Asia

10 - 21 December 2001

Daejeon, Republic of Korea

**LIST OF PARTICIPANTS**

**CHINA**

Mr. Ren Hongyan, Project Officer, Division of Air Pollution and Noise Control, State Environmental Protection Administration (SEPA), No. 115 Xizhimennei Nanxiaoje, Beijing, China 100035 [Tel. (86 10) 66153366-5815, 66154879; Fax: (86 10) 66154879]

Mr. Liu Deshun, Comprehensive Division Department of Basic Industries, State Development Planning Commission, 38 S. Yuetan Street, Sanlihe, Beijing, China 100824 [Tel. (86 10) 68501454; Email: ldssdpc@sohu.com]

**MONGOLIA**

Ms. Baatarsuren Tserenlkham, Officer, Ministry of Nature and Environment, Natural Resources Department, Government Building 3, Baga toiruu-44, Ulaanbaatar-11, Mongolia [Tel. (976 11) 326616; Email: epa-fwb@magicnet.mn]

Ms. Sanduijaviin Narantuya, Ministry of Nature and Environment, Department of Information Monitoring and Assessment, Government Building 3, Baga toiruu-44, Ulaanbaatar-11, Mongolia [Tel. (976 11) 320402; Fax: (976 11) 321401]

Ms. Enkhjavkhlan Mart, Engineer, Power Plant #3, Government Building 3, Baga toiruu-44, Ulaanbaatar-11, Mongolia [Tel. (976 11) 326595; Fax: (976 11) 321401]

**JAPAN**

Mr. Ichirou Saito, Assistant Manager, Research and Development Group, Thermal Power Department, Electric Power Development Co., Ltd., 15-1 Ginza 6-Chome, Chuo-ku, Tokyo 104-8165, Japan [Tel. (81 3) 3546-9404; Fax: (81 3) 3546-9357; Email: [ichirou\\_saito@epdc.co.jp](mailto:ichirou_saito@epdc.co.jp)]

## **REPUBLIC OF KOREA (ORGANIZER)**

Mr. Hong-Woo Rhew, Director, Power Generation Laboratory, Korea Electric Power Research Institute (KEPRI), 103-16 Munji-dong, Yusung-ku, Taejon 305-380, Seoul, Republic of Korea [Tel. (82 42) 865-5300; Fax: (82 42) 865-5304; Email: [hwrhew@kepri.re.kr](mailto:hwrhew@kepri.re.kr)]

Mr. Woo-Young Kim, NEASPEC Training Center T/F Leader and Deputy General Manager, Korea Electric Power Research Institute (KEPRI), 103-16 Munji-dong, Yusung-ku, Taejon 305-380, Seoul, Republic of Korea [Tel. (82 42) 865-5490; Fax: (82 42) 865-5304; Email: [kimwy@dava.kepco.co.kr](mailto:kimwy@dava.kepco.co.kr)]

Mr. Kyung-Ryong Jang, Manager in Environment Research Group, Power Generation Laboratory, Korea Electric Power Research Institute (KEPRI), 103-16 Munji-dong, Yusung-ku, Taejon 305-380, Seoul, Republic of Korea [Tel. (82 42) 865-5480; Fax: (82 42) 865-5304; Email: [jangkr@kepri.re.kr](mailto:jangkr@kepri.re.kr)]

Mr. An Hi Soo, Senior Researcher, Research Policy and Planning Group, Korea Electric Power Research Institute (KEPRI), 103-16 Munji-dong, Yusung-ku, Taejon 305-380, Seoul, Republic of Korea [Tel. (82 42) 865-5126; Fax: (82 42) 865-5104; Email: [niffy@kepco.co.kr](mailto:niffy@kepco.co.kr)]

Mr. Sung-Chul Kim, Project Leader, Principal Member of Technical Staff Advanced Power Generation and Combustion Group Power General Laboratory, Korea Electric Power Research Institute (KEPRI), 103-16 Munji-dong, Yusung-ku, Taejon 305-380, Seoul, Republic of Korea [Tel. (82 42) 865-5380; Fax: (82 42) 861-5796; Email: [sckim@kepri.re.kr](mailto:sckim@kepri.re.kr)]

Mr. Heesung Shin, Technology Evaluation Research Team, Korea Institute of Energy Research (KIER), 71-2, Jang-Dong, Yusong-Gu, Taejon 305-343, Seoul, Republic of Korea, [Tel. (82 42) 860-3011; Fax: (82 42) 860-3135; Email: [hsshin@kier.re.kr](mailto:hsshin@kier.re.kr)]

---

## **ESCAP SECRETARIAT**

Mr. Masakazu Ichimura                      Expert on Environmental Policies, Environment and Natural Resources Development Division, Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Building, Rajdamnern Avenue, Bangkok 10200, Thailand [Tel:(662) 288-1688 (Direct); Fax: (662) 288-1000, (662) 288-1025 (Direct); E-mail: [ichimura.unescap@un.org](mailto:ichimura.unescap@un.org)]

---

**Training Programme and Timetable**

date	content	lecturer	organization
[12.10(Mon)]			
09:00 11:50	Opening Ceremony and orientation	Mr Rhew	KEPRI
12:00 13:00	Luncheon with director of KEPRI		KEPRI
13:00 14:50	General purpose & theory	Mr. Ha	KEPRI
15:00 17:00	Life Assessment of Boiler & Turbine	Mr. Song	KEPRI
[12.11(Tue)]			
09:00 11:50	New Tech. & Practise	Mr. Chang	KEPRI
12:00 13:00	Luncheon		
13:00 17:00	Performance Management Technology	Mr. Hong	KEPRI
[12.12(Wed)]			
09:00 11:50	Materials and Failure Analysis Tech.	Mr. Lee	KEPRI
12:00 13:00	Luncheon		
13:00 17:00	Generator and Motor Technology	Mr. Kim	KEPRI
[12.13(Thur)]			
09:00 11:50	Water Chemistry	Mr. Park	KEPRI
12:00 13:00	Luncheon		
13:00 14:50	NDT Technology	Mr. Cho	KEPRI
15:00 17:00	Maintenance & Conservation Technology	Mr. Kang	KEPRI
[ 12.14(Fri)]			
09:00 17:00	Simulator Operation	Engineers	Poryong

date	contents	lecturers	organization
[12.17(Mon)]			
09:00 11:50	Boiler Supporting System Technology	Mr. Hyun	KEPRI
12:00 13:00	Luncheon		
13:00 17:00	Coal Test	Mr. Kim	KEPRI
[12.18(Tue)]			
09:00 11:50	Boiler Design	Mr. Kim	Doosan Co.
12:00 13:00	Luncheon		
13:00 17:00	Combustion & Analysis	Mr. Kim	KEPRI
[12.19(Wed)]			
09:00 11:50	Precipitation	Mr. Kim	KEPRI
12:00 13:00	Luncheon		
13:00 13:50	SNCR of NOx	Mr. Lee	KEPRI
14:00 15:50	SCR of NOx by NH3	Mr. Nam	Pohang Uv.
16:00 17:00	Design of SCR Process for NOx Reduction	Mr. Lee	KEPRI
[12.20(Thur)]			
09:00 09:50	SCR of NOx by Hydrocarbon	Mr. Kim	KEPRI
10:00 11:50	Production of Catalytic for Commercialization	Mr. Uhm	Seshin Co.
12:00 13:00	Luncheon		
13:00 13:50	Air Pollution Control Strategy in KOREA	Mr. Cho	Seobu P. Co.
14:00 15:50	Air Environmental Regulation and SO2 Control Tech.	Mr. Chang	KEPRI
16:00 17:00	FGD Process variables and KEPAR FGD Tech.	Mr. Park	KEPRI
[12.21(Fri)]			
09:00 09:50	Economic Evaluation	Mr. Shin	KIER
10:00 11:50	Review of Training / Completion Ceremony	Mr. Kim / Mr. Rhew	KEPRI
12:00 13:00	Luncheon		

## ANNEX 3

**Summary of Evaluation Report by Participants**

	Evaluation by participants (*1)	Comments
The overall structure of the Training Course	○□	<ul style="list-style-type: none"> <li>Well arranged</li> <li>The contents of the lectures should be prepared according to the background and the major of the participants, or ESCAP should demand the trainees to have special background</li> <li>It would be better to divide trainees into engineers and economists</li> </ul>
The total duration of the Training Course	□□	<ul style="list-style-type: none"> <li>Just right</li> </ul>
The comprehensiveness of the Training Course in covering relevant subjects	□○○□	<ul style="list-style-type: none"> <li>More lectures on the laws, regulations, standards and policy of the air pollution control could be added</li> <li>The future development of energy and the relation between energy and environment could be given more attention</li> <li>More knowledge and experience in the field of efficiency, economics and environment could be presented</li> <li>Overlapped lectures should be decreased.</li> </ul>
The contents of the text materials and other documentation	□○○□□□	<ul style="list-style-type: none"> <li>Rich and useful</li> <li>Some are good, some are not so good</li> </ul>
The demonstration facilities and other non-text materials for the Training	□○▲	<ul style="list-style-type: none"> <li>The pilot equipment was impressive and unforgettable</li> <li>Seeing is believing. Only lectures are not enough</li> <li>On-site observation was effective and fruitful</li> </ul>
The length and comprehensiveness of individual subject lectures	□○○○▲▲	<ul style="list-style-type: none"> <li>Afternoon lectures were a little too long</li> <li>Lectures were difficult for the people who didn't study chemistry</li> </ul>
The discussion taken place during the Training Course	□□▲	<ul style="list-style-type: none"> <li>Less discussion due to few participants</li> <li>Most lectures were proceeded one way</li> <li>A session for country report presentation by participants would be useful</li> <li>Information on Korea and other countries' successful experience would be useful</li> </ul>

The usefulness of the Training Course to your work.	□○□▲	<ul style="list-style-type: none"> <li>• Will be of great help</li> <li>• Someday these technologies will help our descendents</li> <li>• It was the systematic training in the field of power plants. The knowledge and experience will be applied in the policy making in the field of air pollution control in China.</li> </ul>
The overall effectiveness of the Training Course	□□○○▲	<ul style="list-style-type: none"> <li>• Systematically organized</li> <li>• Effective arrangement</li> </ul>

- \*1) Legend:
- : Most satisfactory
  - : Very satisfactory
  - : Satisfactory
  - ▲: Could have been better
  - : Not satisfactory