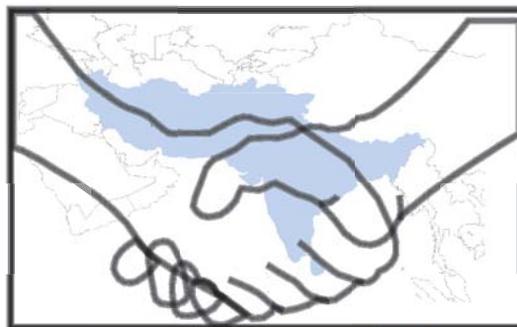


NEWS LETTER

Malé Declaration on Control and Prevention of Air Pollution and Its Transboundary Effects for South Asia

Volume 1 Number 1



April 2002

Malé Declaration Entering into the Phase II

Implementation of Malé Declaration aims to build the regional cooperation and national capacities in addressing the issue of transboundary air pollution. The implementation is considered be broadly divided into three phases. Phase I included awareness raising, network development, and preparation of baseline information and action plans. Phase II will put in place the expertise and equipment to study the issue. The third phase will eventually provide appropriate information for the policymaking and mitigation options.

After the successful completion of Phase I, the Malé Declaration is now entering into the Phase II. The national level capacity building activities will begin from May this year with a technical training on monitoring and analysis of transboundary air pollution. Additional capacity will be built through training and strengthening of national training monitoring stations in 2002.

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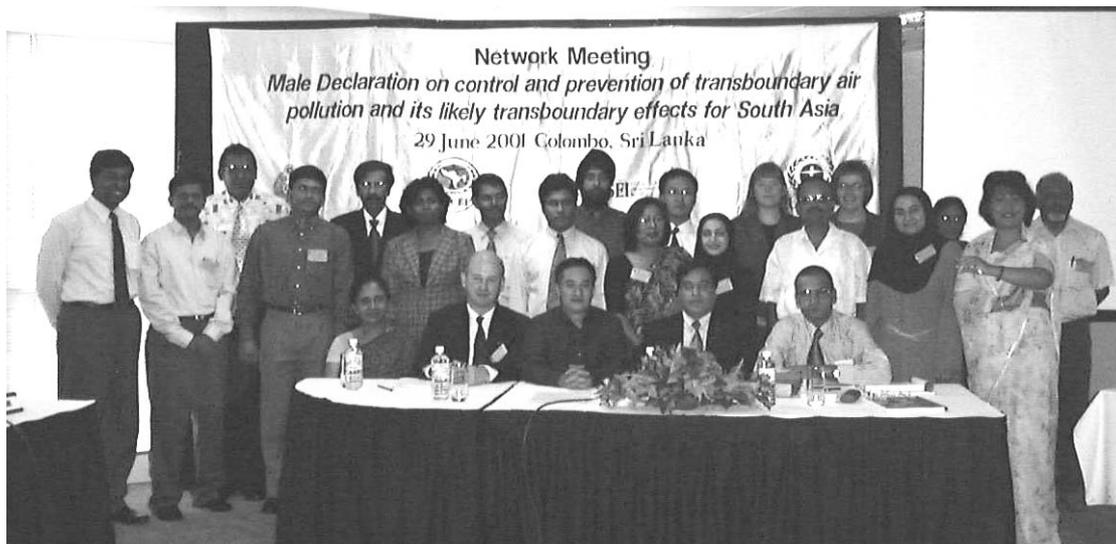
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Network Meeting 2001

Following adoption of the Malé Declaration in 1998, annual meetings of the National Focal Points (NFP) and National Implementing Agencies (NIA) were being organized. The main objectives of the annual network meetings are to provide the opportunity for sharing the information and experiences, and develop / review / adopt implementation and technical

documents for Malé Declaration.

The 3rd Network Meeting was held in Colombo on 29 June 2001. The meeting was attended by over 40 participants from NFPs, NIAs, South Asia Cooperative Environment Program (SACEP), UNEP Regional Resource Center for Asia and the Pacific (RRC.AP), and Stockholm Environment Institute (SEI). Members of the Malé Declaration

Monitoring Committee (MoC) also attended the meeting.

The meeting reviewed the MoC report which is a strategy paper for Phase II implementation developed in consultation with the NIAs. The meeting also adopted the outline of the technical manual and requested the MoC to develop a manual based on the agreed outline.

Brief History of Malé Declaration

Policy Dialogue to Phase I Completion

On 19th and 20th of March 1998 a round-table policy dialogue regarding the rapidly increasing problem of regional air pollution, with a focus on South Asia, was organized at the Asian Institute of Technology (AIT), Bangkok, Thailand. The Meeting was organized by the UNEP Regional Resource Center for Asia and the Pacific in collaboration with the Stockholm Environment Institute (SEI). The meeting was attended by a distinguished group of senior level environment ministry officials from South Asian countries, analysts and policy influencers, and representatives from key environmental organisations in the area. The meeting agreed on the need for action. The meeting, noting the experience of Europe decided to work on a draft declaration. The meeting approved the draft declaration in principle and decided to submit to the Seventh Governing Council of South Asia Cooperative Environment Programme (SACEP) for adoption.

The Malé Declaration: The Seventh meeting of the Governing Council of SACEP, held in April 1998 in Malé, the Republic of Maldives, adopted the declaration naming it the “Malé Declaration on Control and Prevention of Air Pollution and its likely Transboundary Effects for South Asia”. The Malé Declaration stated the need for countries to carry forward, or initiate, studies and programmes on air pollution in each country of South Asia. The first stage in this process is to document current knowledge and information/institutional capacity in each nation relevant to air pollution issues. To this

end it was agreed that baseline studies would be developed. Gaps in the current status of knowledge and capacity would become apparent and national action plans to fill these gaps could then be implemented, creating a solid scientific basis for the policy process. Implementation of the action plan will put in place expertise, equipment and information for quantitative monitoring, analysis and policy recommendations for eventual prevention of air pollution.

Phase I implementation: Phase I was initiated with the adoption of the implementation plan by the first network meeting held in February 1999. Phase I saw the establishment of a network of organizations to implement the declaration and compilation of baseline information on air quality monitoring and management in the participating countries. Baseline studies provided valuable information on tackling the transboundary air pollution in the participating countries and clearly identified the gaps in the existing monitoring systems. Action plans provide the national priorities in implementing the Malé Declaration. Phase I outputs were reviewed and adopted at the 2nd meeting of the network held in March 2000.

Monitoring Committee: The 2nd Network meeting also recommended the establishment of a monitoring committee (MoC) comprising experts in air pollution. The MoC is mandated to study the national needs and recommend a plan for filling the existing gaps in the monitoring system. The MoC is also mandated to develop a technical manual on

monitoring transboundary air pollution.

Policy Dialogue March 1998



Environmental Ministers from South Asia adopted the Malé Declaration in April 1998 at the SACEP Governing Council



NFPs and NLA met at a workshop held on February 1999 to review the implementation plan for the Phase I of the Malé Declaration.



Intergovernmental consultation held on March 2000 concluded the preparation of baseline information and adopted the national and sub-regional action plans.

Thermal Power

Potential Impacts on Biodiversity

by Sagar Dhara, Monitoring Committee member

The impact of thermal power generation on biodiversity may well be greater than that by any other anthropogenic activity. Yet, this problem has remained unrecognized. Thermal power impacts biodiversity at: a) the local (<10 km) and regional levels (<50 km), and b) the meso (<500 km) and macro levels (>500 km). Local and regional impacts are caused by air, water and soil pollutants from power plants, and due to additional human activity--population expansion, downstream industries and services--around them which may disturb nearby forests. These impacts are briefly described below.

Coal-based thermal power plants emit large quantities of air pollutants--oxides of sulphur, nitrogen and carbon and particulate matter. Air pollutants, except carbon dioxide, are phyto-toxic and cause visible (necrotic foliar symptoms) and subtle (lower plant quality and decreased yields) impacts on plant species.

Thermal power plants require large quantities of water for cooling systems, which are discharged at elevated temperatures (5-12 degrees Celsius above ambient) into water bodies--rivers, canals, marine waters. In hot climates, many aquatic species live close to their critical thermal limits.

While a 5 degree rise in water body temperature may not impact the species significantly, a larger temperature change may alter the ecobalance between predators, competitors, prey animals and plant foods. These effects are not well understood yet.

Coal-based power plants generate large quantities of ash, which are sluiced with water and let into unlined ash ponds. If the ash pond soils are porous, toxic heavy metals may leach from the ash and contaminate the top aquifers and the root zone soil layers. This would be inimical to plant and animal life.

To minimize coal transport, thermal power plants are usually located at coal pitheads, which lie in or close to forests. After a power plant becomes operational, it attracts downstream industries and services, consequently creating a growth pole. Forests close to such growth poles would consequently shrink and that will impact their biodiversity.

Power plants also require large quantities of cooling water. With water becoming scarce, power plants will, in future, be forced to migrate closer to river origins, which usually are in forested hills. Such location of power plants will have the same impact on forests that pithead plants have had.

Though stray studies of the impact of air and thermal pollution on individual species exist, techniques such as ecosystem analysis have not yet been used extensively to understand regional biodiversity changes in a holistic manner. Meso and macro level impacts may occur over large areas down-wind of thermal power plants due to the deposition of acid gases (oxides of sulphur and nitrogen) emitted by them. These effects, which manifest slowly, may be more injurious to the environment and biodiversity than due to thermal power plant impacts caused at regional levels.

Thermal power plants have tall stacks (225-275 m), which push air pollutants into the upper atmosphere. Acid gas emissions from power plants are picked up by winds, transported over meso and macro distances, and are deposited back to the earth's surface, along the wind track, as dry and wet depositions. These deposition have the potential to impact terrestrial and aquatic ecologies directly by reducing species density and diversity and altering their mix, and indirectly by impacting their environments by acidifying soils and water bodies and causing forest diebacks.

Studies indicate that soils in the Himalayas North-East India and in the Western and Eastern Ghats, which have low buffering capacity for absorbing acid gases, are at higher risk to acidify in the coming decades. Consequently, they may lose their capacity to continue to play host to the very rich biodiversity they do today. The extent of the impact on these regions is still to be assessed.

The short-term policy measures that may be required to rectify the situation are: (1) Formulating siting rules for thermal power plants, with due consideration for biodiversity impact, and (2) Monitoring acid depositions and their effects on soils, vegetation and aquatic environments. This should be done separately by government and other agencies (educational institutes, NGOs) to allow for independent verification of data and results and also to involve wider public participation in understanding the risk thermal power plants pose to the environment.

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Malé Declaration

at the World Clean Air & Environment Congress



UNEP Executive Director Dr. Klaus Töpfer emphasized the Malé Declaration on his keynote address at the 12th World Clean Air & Environment Congress. The congress was held on 27 August 2001 in Seoul, South Korea. Part of his speech on long-range transport of air pollution is presented here for the Malé Declaration Newsletter.

LONG-RANGE TRANSPORT OF AIR POLLUTION:

a. Europe experience: Long-range transport of acidifying compounds, hemispheric ozone and its effects, and persistent organic pollutants are recognized as atmospheric problems affecting the whole world and requiring multinational solutions. The UNECE Convention on Long-Range Transport of Air Pollution was established to address these problems in Europe and North America - recognised as one of the earliest and most effective examples of international collaboration on environmental problems.

b. Asian Experience: Let me outline some of the initiatives UNEP is taking in partnership with governments in Asia. As you are aware there are four major sub-regions or political groupings in Asia: Central Asia, South Asia, the ASEAN grouping and the East Asia.

Central Asia: The five Central Asian countries will be completing the first Regional Environment Action Plan this year. One of the five key priority issues in the Action Plan is air pollution. The Plan will articulate how to address this issue with cooperation from all the five countries.

South Asia: The Malé Declaration on Control and Prevention of Air Pollution and its likely Transboundary Effects for South Asia was adopted

by the South Asian countries in 1998. The implementation of the Declaration has three phases. Phase I of the plan, building awareness and action plans has been completed. This year Phase II has been initiated to install monitoring stations and build capacity.

ASEAN: As you are aware, one of the major issue in ASEAN is the Indonesian Fire and Haze. The haze continues to have an enormous impact on human health and the economic sector. The haze affected at least five countries directly. The 10 countries of ASEAN have decided to start with a legal framework on the transboundary haze issue. Three negotiating sessions amongst the countries have been held with the UNEP legal team. This will be the first regional air pollution convention outside Europe.

East Asia: The East Asia Acid Deposition Network (EANET) has ten participating countries and over 100 monitoring stations. UNEP will be hosting the secretariat for EANET beginning January 2002.

ABC: In 1998 a group of scientists working under the INDOEX (Indian Ocean Experiment) discovered a brown haze 3 kilometers thick about the size of US continent over mainland of Asia. Initial findings of the scientists show: about 60% of the haze is a result of biomass combustion; a reduction of sunlight both in the oceans and the land

ranging from 10-20%; and that the haze is growing. This discovery will have an enormous impact on human health, on crop yield and the water budget. UNEP has put together the best scientists to understand the scientific issues of this Asian Brown Cloud (ABC) and its impacts. Through the media we see the following events repeatedly over the past three years: increase in the droughts in West Asia increasing the intensity of desertification affecting over 500 million population; drop in crop yield of over 3 % p.a. across much of the continent; and increased intensity and frequency of floods along the East Asia coast affecting over 900 million. UNEP is assisting by collaborating to bring the best in science, the governments, and the major groups of civil society to address this emerging issue.

Thermal Power ...

Medium-term measures require a mix of technical (use of FGDs, increasing end-use device efficiencies, reducing T&D losses) and administrative (demand-side management) instruments to reduce acid gas emissions. Long-term measures may require the substitution of fossil fuels with renewable energy (wind, solar, biogas) and hydrogen as the mainstay fuel.

(for a copy of the full paper, please email to sagbbara@bd1.vsnl.net.in)

Visits and Discussions

PSC Meeting

The Program Steering Committee (PSC) meeting of SEI's RAPIDC Programme was held on 25 January 2002 in Stockholm. UNEP RRC.AP and SACEP participated at this meeting via videoconference from RRC.AP's office in Bangkok. Mahboob Elahi, Director General, SACEP and Surendra Shrestha, Director, RRC.AP, presented the progress and proposed plan on Phase II implementation of Malé Declaration.

SEI Visit

Dr. Johan Kuylensstierna from SEI-York and Dr. Lars Nordberg representing the RAPIDC Programme Advisory Group visited RRC.AP on 18-19 February 2002. During this visit proposed plan of action for Phase II implementation of Malé Declaration was discussed. Initiating the studies on emission inventories and modeling parallel to monitoring activities were also discussed.



MoC Meeting

A Monitoring Committee (MoC) Meeting was held at RRC.AP, 27-28 February 2002, to discuss the technical details for the monitoring network. MoC members who attended the meeting include Karin Sjoberg (IVL) and Sagar Dhara. M. Iyngararasan, Wah Wah Htoo and Subrato Sinha from RRC.AP also participated at this meeting.

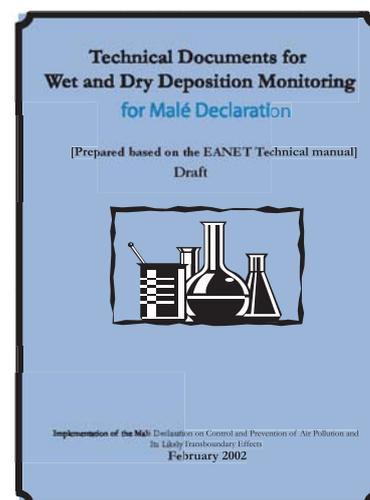


Upcoming events

- **The First Training Program** under the Malé Declaration tentatively scheduled to be held on 29 - 31 May 2002 at RRC.AP, Bangkok, Thailand.
- **Annual Collaborators' Meeting** of RAPIDC will be held on 4 June 2002. SACEP and UNEP RRC.AP will make a presentation to the Swedish stakeholders on current initiatives in tackling the transboundary air pollution in Asia with the focus on Malé Declaration on transboundary air pollution.
- **Annual Network Meeting (2002)** of Malé Declaration is to be held tentatively on 16 - 17 July. The network meeting will be attended by National Focal Points and National Implementing Agencies of Malé Declaration, SACEP, SEI, and UNEP RRC.AP.
- **A National Stakeholders Meeting** is proposed to be held on September 2002 in India.

Technical manual for monitoring transboundary air pollution.

First draft of the technical manual for monitoring the transboundary air pollution for Malé Declaration is now completed. It is currently being reviewed by the National Implementing Agencies. The manual was based on the East Asia Network on Acid Deposition (EANET) manual.



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National Focal Points (NFP) and National Implementing Agencies (NIA)

Bangladesh

NFP: Ministry of Environment & Forest

NIA: Department of Environment
Dhaka

Bhutan

NFP & NIA: National Environment Commission
Thimpu

India

NFP: Ministry of Environment and Forests

NIA: Central Pollution Control Board
New Delhi

Iran

NFP & NIA: Department of Environment
Tehran

Maldives

NFP & NIA: Ministry of Home Affairs, Housing & Environment
Malé

Nepal

NFP: Ministry of Population & Environment

NIA: International Center for Integrated Mountain Development
Kathmandu

Pakistan

NFP: Ministry of Environment, Local Govt. & Rural Development

NIA: Pakistan Environment Protection Agency, Islamabad

Sri Lanka

NFP: Ministry of Forestry & Environment

NIA: Central Environment Authority, Colombo

Coordinating Agencies

UNEP Regional Resource Center for Asia and the Pacific (UNEP RRC.AP)
Bangkok, Thailand



South Asia Cooperative Environment Programme (SACEP)
Colombo, Sri Lanka



Stockholm Environment Institute (SEI)
Stockholm, Sweden



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Malé Declaration Newsletter

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