

NEWS LETTER

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

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Malé Declaration Phase II Implementation

With the completion of the network establishment, baseline studies and action plans the first phase is concluded. Baseline studies provide valuable information on tackling the transboundary air pollution in the participating countries and clearly identified the gaps in the existing monitoring systems. The action plans provide the national priorities in implementing the Malé Declaration. The general objective of Phase II is to put in place the expertise, equipment and information needed for the quantitative

monitoring, analysis and policy recommendations for the eventual prevention/control of air pollution.

Strengthening the monitoring capacities based on common methodologies and standards at the national level will be the major task for Phase II implementation. A technical committee prepared an implementation plan and a technical manual. These were endorsed by the governments and experts. Phase II will implement the agreed plan. The proposed monitoring network will provide the foundation for scientific work in South Asia.

Network Meeting 2002

The 4th Network Meeting 2002 was held in Kathmandu on 18-19 July 2002. The meeting follows a continuation of the process, which began in Bangkok in March 1998 where a policy dialogue concerning regional air pollution in South Asia was initiated. This was followed by an inception workshop held in Kathmandu during 22-23 February 2000 and the 3rd Network Meeting held in Colombo on 29 June 2001.

Mr. P.L. Singh, Hon. Minister for Population and Environment, Nepal, opened the 4th Network Meeting noting that "Malé Declaration is now being conceded as one of the models in sub-regional cooperation on environmental issues in South Asia". National Focal Points and National Implementing Agencies from



Honorable Minister for Population and Environment Nepal, delivering the opening statement

member countries, representatives from SEI, SACEP and UNEP RRC.AP participated in the meeting.

Phase II activities were initiated in March 2002 aimed at building capacity in each participating country on generating dry and wet deposition data in order to carry out the assessment of transboundary air pollution. The Network Meeting 2002 was organised in

order to review the progress made since the last Network Meeting, and to chart out the future plan of action. Discussions included the technical details in establishing the transboundary air pollution-monitoring network in the participating countries. The meeting also adopted a status report to be submitted to the Environment Ministers on the progress of implementing the Malé Declaration.

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Capacity Building

First Training On Monitoring Transboundary Air Pollution

The first training programme on monitoring transboundary air pollution for the Malé Declaration was held at UNEP RRC.AP, Bangkok in collaboration with SACEP, IVL and SEI during 29 - 31 May 2002. The training was funded by Sida as a part of the Programme on Atmospheric Environment Issues in Developing Countries. This is the first of a series of capacity building activities scheduled to be held during the Phase II implementation of the Malé Declaration.

The participants included the project managers from National Implementing Agencies (NIA) and technical personnel who will carry out the monitoring in eight participating countries, members of Monitoring Committee (MoC),

SACEP, SEI, UNEP, and an expert from EANET. Participants from this training will serve as the resource persons when the in-country training programmes are organised for each of the member countries.

Major discussions in the training programme included the technical issues on site selection; a brief on the technical manual; and a demonstration on sampling and analysis of transboundary pollutants. During the meeting, the participants visited the wet deposition monitoring facilities at ERTC (Environmental Research and Training Center) at Pathumthani and the AIT Environmental Engineering Laboratory for demonstration of sampling and analysis.



Demonstration of monitoring wet deposition at ERTC



Demonstration of air sample analysis at AIT Environmental Engineering Laboratory

Open Seminar

On Regional Air Pollution In Developing Countries

In June 2002, a Open Seminar on Regional Air Pollution in Developing Countries (RAPIDC) took place in Stockholm. Since 1992, the Swedish International Development Cooperation Agency (Sida) has been funding this programme (RAPIDC), which is being co-ordinated by the Stockholm Environment Institute (SEI).

UNEP RRC.AP and SACEP made presentations at this Seminar on behalf of the Malé Declaration. Surendra Shrestha, Director of RRC.AP presented the current initiatives in Asia in tackling the transboundary air pollution with a focus on the Malé Declaration. Mahoob Elahi, Director General of SACEP presented the needs and the implications of the Malé Declaration in South Asia.

The seminar was held to raise awareness on the air pollution problems in Asia and Africa and to compare and contrast the experience of European and



Participants of the programme Steering Committee meeting of RAPIDC

North American countries. Sida and SEI invited interested stakeholders to find out more about air pollution in those regions and activities undertaken to address this problem.

Presentations were given by SEI and RAPIDC collaborators from Asia, Sweden and Africa. The progress towards regional agreements on air pollution abatement in Asia and Africa was dis-

cussed. The seminar was well attended and participants included representatives of developing country embassies based in Stockholm, the Swedish Government, academia and industry. A programme Steering Committee meeting of RAPIDC programme also held during the first week of June in Stockholm.

For more details visit the RAPIDC website: WWW.RAPIDC.ORG

A few thoughts for the road ahead-1

Sagar Dhara

The Malé Network has achieved two remarkable things in the very first year of Phase II of the implementation of the Malé Declaration. It has put together a high quality multi-national team, contributed by all the participating countries and support agencies, to implement its programme; and it has enthused this team with a sense of purpose and teamwork.

Over the next year, our attention will be focused on site selection, setting up the monitoring stations and training. I am confident that we will do a good job of these tasks. But to maintain the momentum gained by the good start that the Malé Network has made, we also need to think ahead. I wish to share a couple of thoughts in this direction.

Quality of human resources:

To generate reliable information on transboundary air pollution and its possible effects, the quality of human and material resources, and the monitoring procedures have to be good. Of these three requisites, UNEP is taking care of the equipment quality and we have decided to review and upgrade the monitoring manuals online so that they are continuously upgraded. We must now work towards creating national-level teams which are as good as the international-level team we already have. For that, we have to do the following:

- While forming the national-level teams, NIAs should recruit competent and, more importantly, motivated persons.
- For the continuing education of the Malé Network team, we should constantly share experiences and ideas. Hence, dialogue must be high within the Malé Network team, through email and this newsletter; and with others working in the same discipline, by inviting them to our meetings and participating in theirs.

- The annual refresher course should, besides improving skills and discussing practical problems, also pay attention to the theoretical aspects of the acidification problem.

National monitoring programme:

The effects of acidifying gases are more likely to be visible at local and regional levels as compared to meso and macro levels. Countries could consider putting into place a national monitoring programme (NMP) over the next five years. An NMP will increase the resolution of information on the acidification process in each country and also help in increasing each country's experience in this subject.

The sites for an NMP should be in the proximity of thermal power, refineries, large cities, etc. The Malé Network protocols could be used for the NMP as well.

Financial constraints should not hamper the NMP. The NMP may start by monitoring soils, vegetation, water quality and aquatic ecology. These factors need to be monitored only once in three years and do not require expensive field instruments or large quantities of consumables. They do not require housing, power connections and permanent staff at field sites. Also, the same team that is used for monitoring at the Malé Network stations can be used for the NMP stations. Monitoring of wet and dry deposition can be added to the NMP subsequently, as and when financial resources permit.

One way of reducing the financial strain on governments is by involving industry in organizing monitorings in its proximity. For example, the Andhra Pradesh Pollution Control Board (in India) has ordered two fertilizer plants, a port authority and a gas-based power plant located at Kakinada, to collectively monitor wet and dry deposition,

soils, vegetation, water quality and aquatic ecology in the mangrove forests of the nearby Coringa Wildlife Sanctuary. Such a programme, though, may be currently feasible only in some countries.

Stakeholder's Forum on Malé Declaration



As a part of wider dissemination the second Stakeholder's forum was held in New Delhi, India on 24 September 2002. This is a continuation of the first workshop held in Malé, Maldives in April 2000. Over 50 participants from all the sectors as well as implementing agencies of Malé Declaration participated in the workshop. The Central Pollution Control Board, and the Ministry of Environment and Forest, India; SACEP; SEI; and UNEP/RRC-AP jointly organized the workshop. Recommendations were derived from the forum for further implementation of the Malé Declaration.



The Asian Brown Cloud

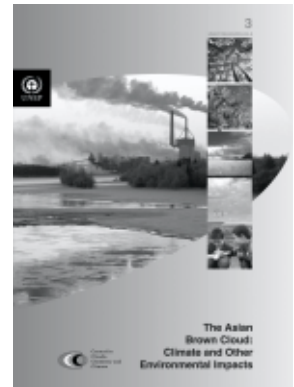
Climate and Other Environment Impacts

"The Asian Brown Cloud report on potential impact of haze was launched on Friday, 9 August 2002"

The Project Asian Brown Cloud (ABC) published its first report on the potential impacts of haze in Asia. This UNEP report is the first comprehensive study of the Haze in Asia and its impacts on climate. The report is based on the studies of the INDOEX science team of over 200 scientists from Europe, India and USA. The report provides an initial assessment of the large brownish haze layer and its impacts on the radiative heating of the atmosphere and the surface for South Asia and the adjacent In-

dian Ocean during the INDOEX campaign. It also discusses preliminary findings with respect to the impact of this haze on regional temperatures, precipitation, agriculture and health.

The report summarizes that "some of the results listed in this report are preliminary in nature but do not indicate possibilities of substantial changes in climate scenario and impacts even when GHGs are considered." The report also said "in spite of the advances



by INDOEX, significant scientific uncertainties remain. First we need to estimate the haze amount and its radiative forcing during May to December. We need studies with coupled ocean-atmosphere models to address the following questions: How does the solar heating in the haze affect the monsoon rainfall? How does the reduction of solar energy to the surface affect the water budget and soil moisture?"

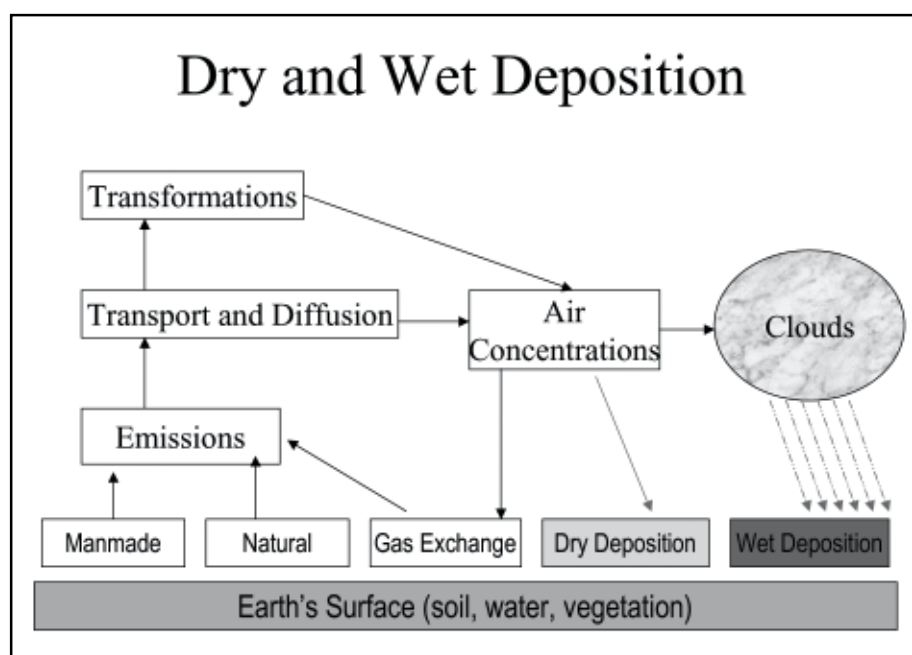
Transboundary Air Pollution

by Mylvakanam Iyengararasan UNEP RRC.AP

There are a number of "transboundary" air pollutants including sulphur oxides, nitrogen oxides, ammonia, tropospheric ozone, heavy metals and persistent organic pollutants (POPs). As it is used here "transboundary" refers to that part of the issue that is not solely local (e.g. urban areas) or global (e.g. global cli-

mate change). In that emissions often give rise to local impacts and also regional effects after long-range transport, local impacts are considered part of the regional air pollution problems.

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Impact on Agriculture

Haze can impact agriculture productivity in a variety of direct and indirect ways.

Direct Effects: 1) Reduction of total solar radiation (sum of direct and diffused) in the photo-synthetically active part of the spectrum (0.4 to 0.7 micron) reduces photosynthesis, which in turn leads to a reduction in productivity. 2) Settling of aerosol particles (e.g. fly ash, black carbon and dust) on the plants can shield the leaves from solar radiation. 3) In addition, aerosol deposition can increase acidity and cause plant damage.

Indirect Effects: 1) Changes in surface temperature can directly impact the growing season. In the tropics, a surface cooling (such as expected from aerosols) can extend the growing season (while a greenhouse warming can shrink it). 2) Changes in rainfall or surface evaporation can have a large impact.

Source: The Asian Brown Cloud: Climate and other Environmental Impacts

Transboundary Air Pollution....

One of the most common forms of transboundary air pollution is the acid deposition. Acid deposition is mainly caused by sulphur and nitrogen emissions derive from fossil fuel combustion, industrial process and agricultural practices. Sulphur and nitrogen oxides can be carried hundreds of miles and affect the ecosystem through dry deposition and/or wet deposition. Effects include the reduction in crop yields by direct effects of gases; impacts on human health; impacts of corrosion on human-made structures, impacts on soil fertility leading to damaging changes in natural ecosystems; and impacts on forest and crop growth in sensitive soils.

The rain falling on Pitlochry, Scotland on April 10, 1974 was nearly

as acidic as lemon juice (Brain Harvey, 1980). The rain from this storm was 10 times more acidic than "pure" rain water, and most of the acidity was due to man-made sources of the acid-forming oxides of sulphur and nitrogen.

In Asia-Pacific, the rapid growth of cities, together with associated industry and transport systems has made the region increasingly concerned with these emissions. Particularly, the emission of SO₂ and NO_x.

Major weather patterns in Asia facilitate the transboundary transport of air pollutants from land to sea in the winter and reverse in summer. Pollutants can thus be carried from country to country in the region and it is not possible for countries to solve

the problems alone. Policies and infrastructure, which will decide the emissions in the next 25 years, are being planned now. There is an opportunity to choose an alternative development pathway to achieve societal goals avoiding some of the projected impacts. The Malé Declaration on control and prevention of transboundary air pollution and its likely transboundary effects for South Asia is a good example of tackling transboundary air pollution through regional cooperation.

References:

Brain Harvey. 1980. *Acid rain from Man & Nature, Quest vol. 14, no. 4*

MEMBER NEWS

On-Line Discussion Forums:

These forums are dedicated to providing timely solutions for the technical issues faced by the NIAs. Members of the Malé Declaration network are encouraged to visit this discussion forum frequently and raise your technical issues or provide answers to the issues raised by others in the network.

Website:

<http://www.rrcap.unep.org/md/webboard/>

Reports and Technical Manual:

All the meetings, training, MoC reports and Technical Manual are available on the website:

<http://www.rrcap.unep.org/md/malereport/>



Participants of the 4th Network Meeting held in Kathmandu, Nepal

Visit us at

www.rrcap.unep.org/issues/air/maledec/

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

Further information may be requested from:

Surendra Shrestha
Director, UNEP RRC.AP
Outreach Building, AIT, P.O. Box: 4
Klongluang
Pathumthani 12120
Thailand
Fax: (66) 2 516 2125
E-mail: grid@ait.ac.th

To: