Malé Declaration

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

SRI LANKA

An overview of progress
within the last decade...

SRI LANKA
Status of Implementation 2008

Background
Air pollution in Sri Lanka is an increasing problem due to rapid industrialisation. The transport sector contributes about 60% of the air pollution, especially in Colombo City. At present, it has been observed that air pollution in Kandy City is higher than that of Colombo, mainly attributed to mobile pollution sources and because of its location in a valley.

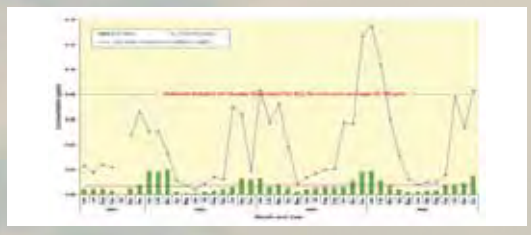
New and highly polluting industries, such as thermal power plants, are being planned within the Colombo Metropolitan Area (CMA), aggravating the existing situation.

However, Sri Lanka is fortunate to have active public participation in issues regarding air pollution. As a result,an updated Clean Air Action Plan has been prepared by the Ministry of Environment and Natural Resources (MENR) and is awaiting approval by the Government.

Air quality monitoring in Sri Lanka has focused mainly on Colombo City. Air quality monitoring in other cities such as Kandy, Anuradhapura, Puttalam, Kurunegala are limited.

Indoor air quality monitoring is very limited in comparison to urban air quality monitoring in Sri Lanka. Although lead has been eliminated from gasoline in 2003, presence of lead in paint is still a cause of indoor air pollution,(in addition to factors such as poor ventilation and use of bio-mass). With regards to regional transboundary air pollution, Sri Lanka is collecting data at a remote site located at Dutuwewa, Anuradhapura under the Malé Declaration. It has not been possible to conclude the extent of transboundary air pollution from the limited data collected so far, hence the need for continue further monitoring.

Nitrogen Dioxide Concentration Monthly Mean and Maximum of one hour averages at Colombo Fort (June 2003 - December 2006)



Sulfur Dioxide Concentration Monthly Mean and Maximum of one hour averages At Colombo Fort (January June 2003 - December 2006)

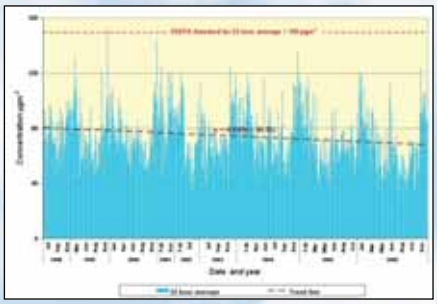
Major Sources of Air Pollution and Impacts
The main causes of air pollution in Sri Lanka are vehicular sources and thermal power plants. Trends in energy consumption demonstrated increases in petroleum consumption compared with other renewable sources such as bio-fuels and hydropower. There has been a significant increase in the vehicle fleet from 1991 to 2006.

Dust/soot is another major source of air pollution in Sri Lanka. As identified by the Central Environmental Authority (CEA), the major culprit for dust pollution are the mobile sources. In addition, suspension of dust particles due to poor maintenance of roads has aggravated dust pollution, especially in urban areas.

The annual average of ambient PM_{10} level in Colombo over the years has remained relatively within the 72 to 82 $\mu g/m^3$ range, peaking only in 2001. These values, however, consistently exceeded WHO's latest guidelines of 20 $\mu g/m^3$ for PM_{10}.

Despite high SO_2 emissions from industrial activities, especially thermal power plants in CMA, and emissions from diesel vehicles, the 1hr average of SO_2 has exceeded from time to time, but fell within the annual USEPA limit of 78 $\mu g/m^3$. Sri Lanka does not have an annual standard for SO_2.

Unlike PM_{10}, which was fairly stable within a small range of values, SO_2 levels in Colombo have shown an increasing trend from 1997 to 2000 and then a general decreasing trend from 2003.



Decreasing trend of PM concentrations (24 hour average) at Colombo Fort Ambient Air Monitoring Station (from 1998 to 2006)

Decreasing trend of Annual averages of PM at Colombo Fort Ambient Air Quality Monitoring Station (1998-2006)

NO_2 concentration in Colombo City over the past years have also shown the same trend as SO_2 concentration: Increasing from 1998 to 2001 and then decreasing. Sri Lanka does not have an annual standard for NO_2.

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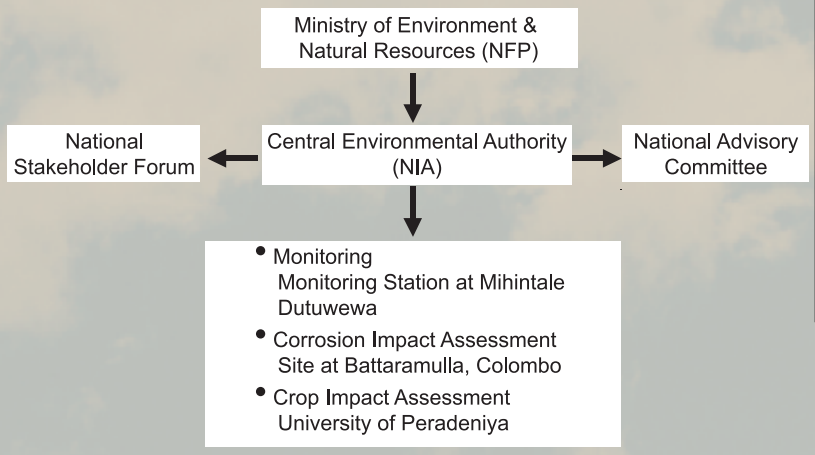
Summary of Malé Declation in Sri Lanka

Corrosion Rack at CEA office, Sri Lanka

Automated Air Quality Monitoring at Dutuwewa

Measuring Air Temperature and Atmospheric Humidity for crop impact assessment at Peradeniya University, Sri Lanka

The Institutional Arrangement and Participating Institutions



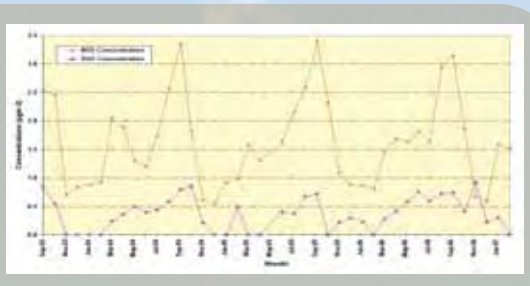
NFP : National Focal Point
NIA : National Implementing Agency

Status of Air Pollution

Pollutant	Status of problem
Particulate matter	Unhealthy
SO_2	Moderate
NO_2	Moderate
O_3	-
CO	Very good
HC	-
Pb	Controlled by Lead phase out in2002

Achievements

- Senior officers at the CEA have been trained to compile emission inventories.
- Senior officers at the CEA have been trained in sampling and analysis of rainwater.
- Techincal staffs have been trained in conducting health impact assessment, crop impact assessment and corrosion impact assessment.
- A transboundary air pollution monitoring station was established at Dutuwewa. A second monitoring station will be established soon at Horton Plains.
- National Stakeholders forum established.



Nitrogen Dioxide and Sulfur dioxide Concentrations Monthly diffusive samplers results at Dutuwewa Monitoring Site (September 2003 – February 2006)

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Summary of Baseline Information

	2000	2008
Nature of problem	Urban vehicular Power production	Urban Vehicular Emissions Emissions from thermal power plants
Status of monitoring	No systematic island wide monitoring; Random monitoring exist	Continuous monitoring in Colombo City and regular monitoring at Dutuwewa
Pollutants monitored	Urban (SO_2, NO_2, PM_{10}, CO, O_3) Rural (pH, Cl^-, NO_3^-, SO_4^{2-})	Urban (SO_2, NO_2, PM_{10}, CO) Rural (pH, Cl^-, NO_3^-,SO_4^{2-}, O_3, SO_2, NO_2)
Number of monitoring stations	2 fixed in CMR; 5 using mobile station; 8 metrological	One continuous automated monitoring (Fixed); One continuous identical automated monitoring station (mobile); One Transboundary air quality monitoring station
Capacity to study air pollution	Limited	Capacity has been built to study crop and corrosion impact.
AQ Standards	CEA standards for SO_2, NO_2, TSP, Pb, O_3, CO	National Ambient Air Quality (1993) for SO_2, NO_2, TSP, Pb, O_3, CO. This has been reviewed by incorporating PM_{10} but yet to be publicized.

Response

Legal

- The National Environmental Act (NEA) of 1980: Section 23J & K prohibites missions of pollutants into the environment
- The National Environmental (Protection and Quality) Regulation of 1990: Sri Lanka Standards Institution (SLSI) has prescribed standards for Sulphuric Acid Plants.
- The Environmental Impact Assessment (EIA) Regulation of 1993: Ensures that any new project to be undertaken under the prescribed list undergoes full EIA.
- The National Environmental (Ambient Air quality) Regulation of 1994: Set ambient air quality standards to protect human health.
- The National Environmental (Air Emission, Fuel & Vehicle Importation Standards) Regulation of 2003: Ensures control of vehicular emissions.

Financial

- Environmental Protection Licensing (EPL) Procedure: Every industry should obtain an EPL to discharge wastes.
- Vehicle Emission Test (VET): Every owner or user of a vehicle should obtain the emission clearnce report from VET centre.

Technological

- Introduction of dual fuel (Petrol & LPG) vehicles
- Euro II emission standards for vehicles
- Introduction of electric cars
- Installation of emission control equipment for industries

Recommendations

- An early warning unit of transboundary air pollution should be established at the central Environmental Authority(CEA).
- Continue capacity building for assessing impacts of air pollution.
- More emphasis should be given to health and crop impact studies.

Coordinating Agencies

UNEP

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

SACEP

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

SEI STOCKHOLM ENVIRONMENT INSTITUTE

Stockholm Environment Institute (SEI) Stockholm, Sweden

Sida WWW.RAPIDC.ORG

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Sri Lanka
NFP : Ministry of Environment & Natural Resources
NIA : Central Environmental Authority, Colombo