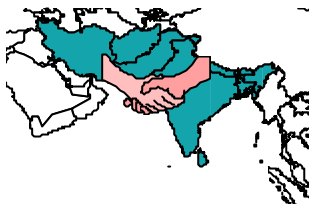


MALÉ DECLARATION

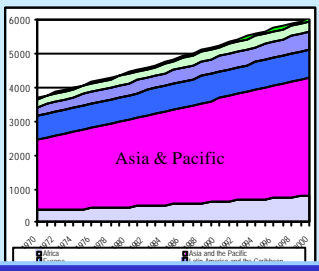
On Control and Prevention of Air Pollution and Its Likely Transboundary effects for South Asia



CONTENTS

- BACKGROUND**
 - Population
 - Economy
 - Emissions
- MALE DECLARATION**
 - Conceptualization
 - Adoption
 - Institutional setup
- IMPLEMENTATION**
 - Phase I
 - Phase II
 - Mitigation

World population



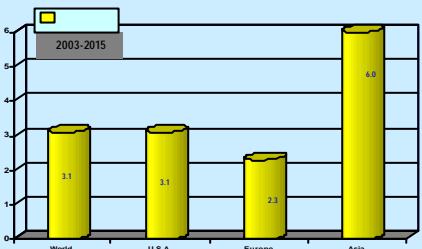
Asia & Pacific

- Nearly two-thirds of world population growth is in Asia
- Nearly 50 million people are being added to Asia every year

Urban vs. Rural: Energy Consumption

Energy Consumption	Developed (Germany) (Kw/capita)	Developing (India) (Kw/capita)
Average	5	0.6
Urban	6	2
Rural	3	0.3

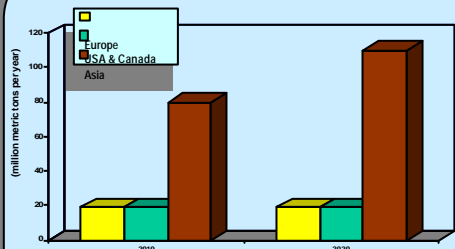
GDP Growth Forecast



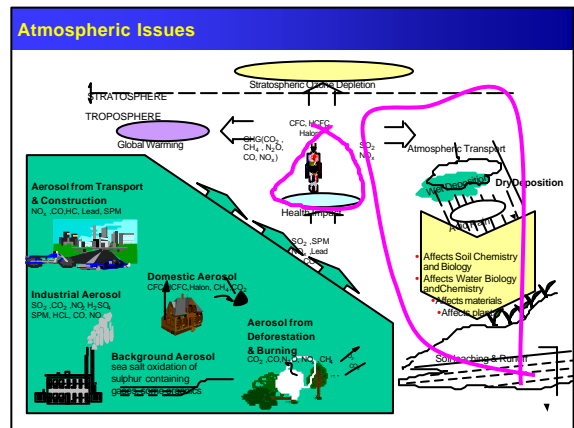
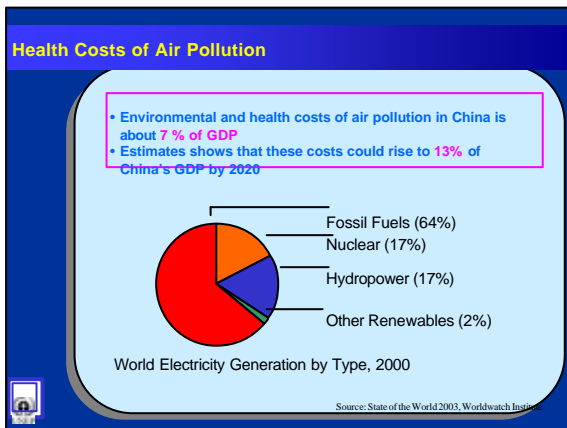
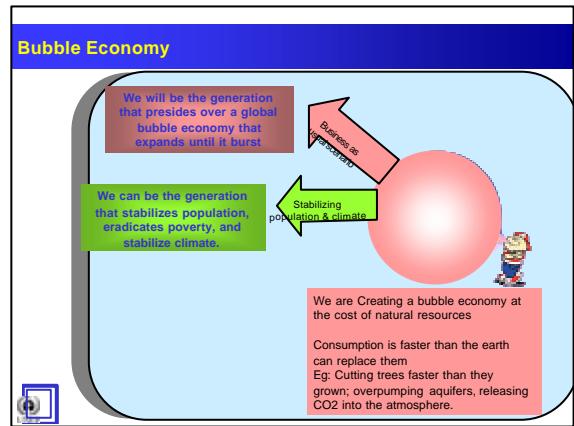
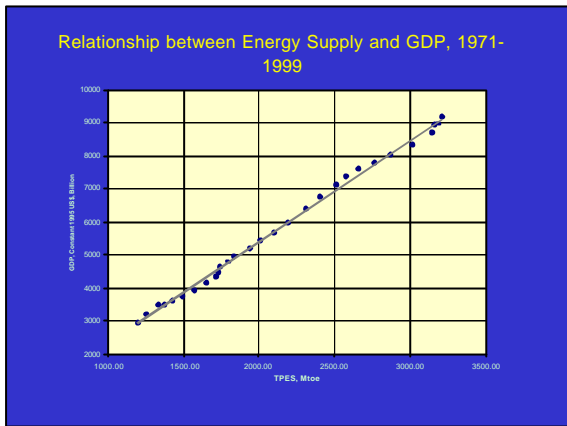
Region	GDP Growth Forecast (2003-2015)
World	3.1
U.S.A.	3.1
Europe	2.3
Asia	6.0

- The global economy is expected to grow at 3.1% during the 2002-2015
- Asian economy is projected to be growing at 6% during the same period

Projected SO₂ Emissions



Year	Europe	SA & Canada	Asia
2010	~20	~20	~80
2020	~20	~20	~110



Malé Declaration: Conceptualization

POLICY DIALOGUE ON REGIONAL AIR POLLUTION ISSUES
March 1998

Main Aims

Create a broader dialogue of the air pollution issues in Asia

Promote the policy cycle in South Asia by:

(i) re-affirmation that transboundary air pollution is a priority issue for South Asia;

(ii) agreeing upon a draft action plan for inter-governmental activities at the policy dialogue.

Participants

Target countries for the phase I (South Asia)

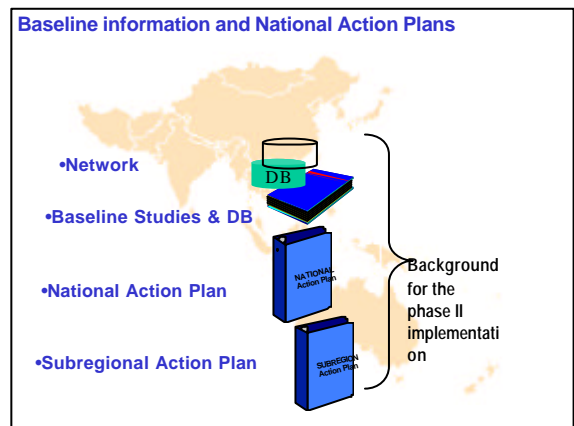
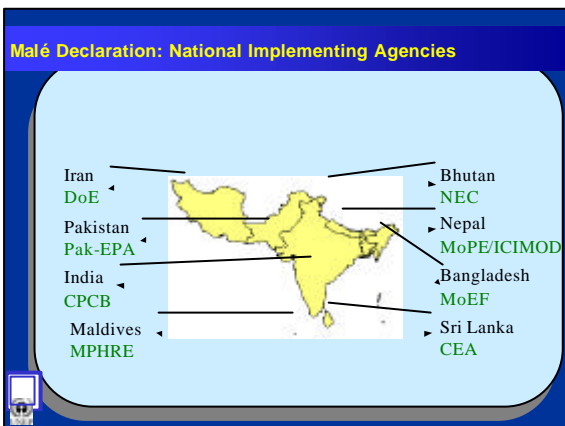
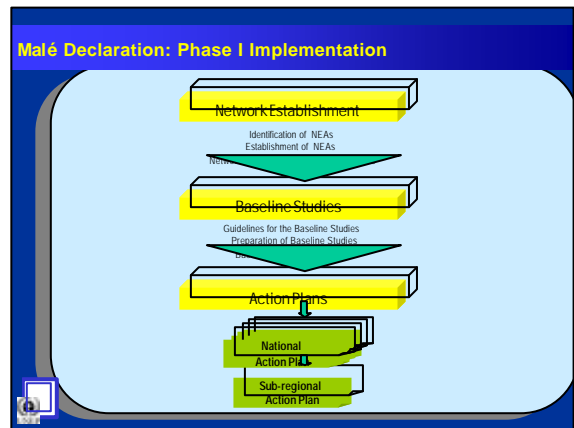
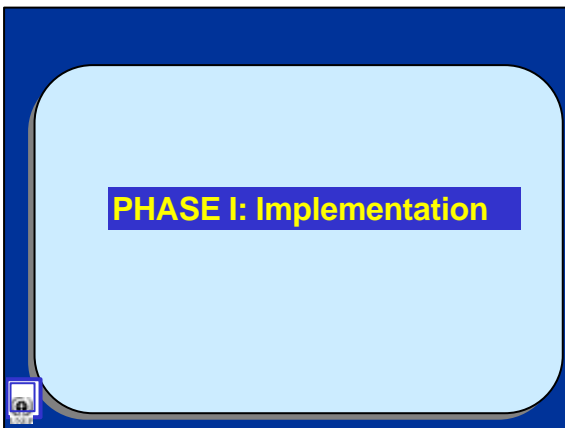
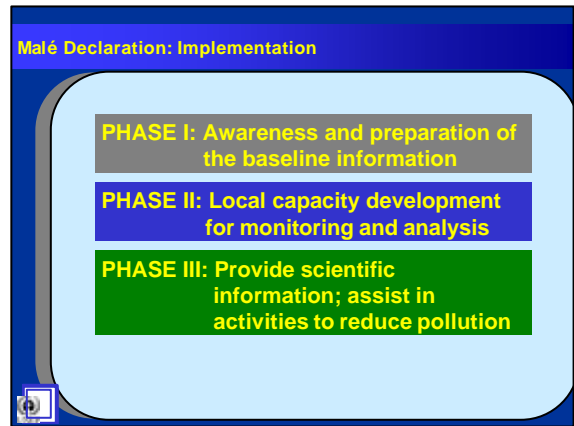
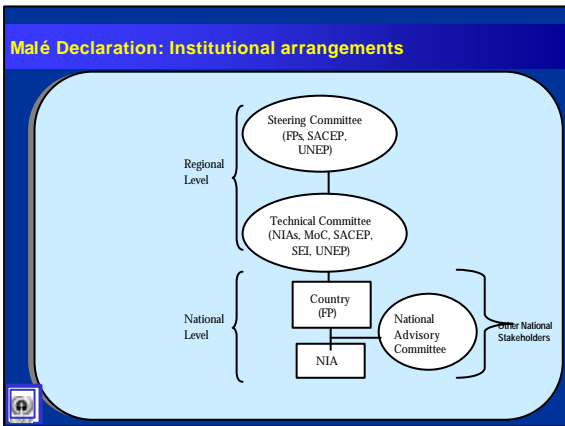
Bangladesh
India
Nepal
Pakistan
Sri Lanka
ADB, ASEAN, SACEP
AIT, ERTC
Sida, SEI, UNEP

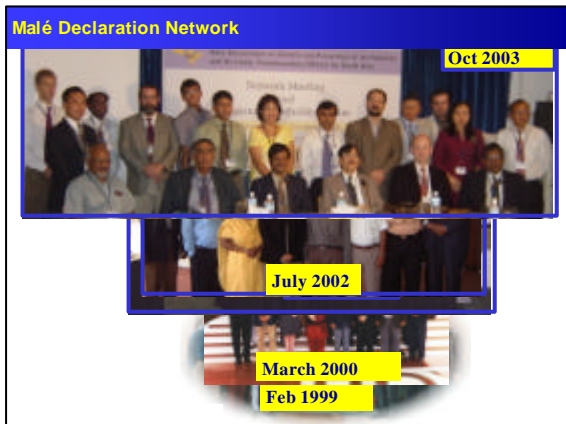
Malé Declaration: Adoption

Adopted at SACEP GC Held on 22 April 1998 in Malé, Maldives.

Inaugurated by His Excellency Mr. Maumoon Abdul Gayoom, President of Maldives

Attended by ministers and high level policy makers from South Asian Environment ministries.





PHASE II: Implementation

Capacity building: Equipment Details

- Technical Manual
- Training materials
- Equipments (site and lab)
- Consumables (site and lab)

Capacity building: Equipment Details

Capacity building: In-country training program

- Monitoring air concentration using HVS
 - Sampling
 - Analysis
- Monitoring air concentration using Passive sampler
 - Sampling
 - Sample handling
- Monitoring wet deposition
 - Sampling by wet only collector
 - Analysis of rainwater for pH and EC
- QA/QC and Data management

OBJECTIVES: to familiarize the participants with the handling of air monitoring instruments and laboratory equipment.

Capacity building in Nepal

Monitoring station established in Chitwan, Nepal in March 2003. Trained over 15 technical personals.

Capacity building in Bhutan

Trained 8 technical persons during May 28 – Jun 1 in Bhutan

Learning rainwater sampling

Learning air sampling

Analyzing the sample

Capacity building in Sri Lanka

Trained technical persons during Jun 23 - 28 in Colombo

Learning rainwater sampling

Air sampling

Capacity building in Maldives

Trained technical persons during Jul 28 – Aug 1 in Hanimaadho

Learning rainwater sampling

Air sampling

Capacity building in Iran

Trained technical persons during Sep 13 – 17 in Tehran

Studying the passive samplers

Laboratory at Ilam

Capacity building in Bangladesh

Trained technical persons during Oct 19 – 23 in Dhaka

About 15 technicians trained

Handling bulk collector

National Reporting: Frequency

Wet deposition monitoring

- Weekly composite samples using wet only collector.
- Weekly composite samples using bulk collector. (Collector must be cleaned thoroughly at the beginning of each week to ensure that there is no dry deposition in the collector from the previous week)

National Reporting: Frequency

Air Concentration Monitoring

Gaseous samples: 24 hr samples [9 am – 9 am]; Sampling to be done for 10 days/month between 5th – 25th of each month.

Dust samples: 1x24 hr samples [9 am – 9 am next day]. Sampling to be done 10 days/month between 5th – 25th of each month.

(Valid sample: when machine up time is >60% of sampling time)

Diffusive (passive) samplers: Monthly

National Reporting: Meteorological measurements

wind direction/speed, temperature, humidity, precipitation amount and solar radiation

(in accordance with the measurement frequency of the meteorological monitoring system of each country)

National Reporting: Site Details

Site details such as land use, potential contamination sources, geographical description, climate need to be documented using the reporting form S1, S2, and S3.

If the information submitted changes, the up-to-date information should be reported as soon as possible

Capacity building: Regional Training Programs


- 4-9 Aug 2003, CPCB, Delhi
- To familiarize the participants on analyzing rainwater for anions and cations



Parallel Studies

Emission Inventories


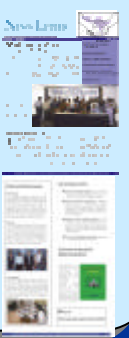
Integrated Assessment Model



Information Exchange

Publication of Newsletters

A discussion group for the Male Declaration network is developed
<http://www.rrcapunep.org/malewebboard>

Stakeholders Participation

- This is part of the expansion of the network
- The Objectives are
 - Increase awareness
 - Share views and ideas on implementation of the “Male” declaration
 - Improve exchange of information between those who manage sources of pollution and those affected by it

Stakeholder's participation

National Stakeholder meeting was held in Maldives

National Stakeholder meeting was held in Delhi on 24 September 2002.

Regional Stakeholder's Forum 8 Oct 03; Dhaka, Bangladesh

Who are Stakeholders

- In Air pollution they are
 - Those **responsible** for air pollution
 - Manufacturers and users of Automobiles, Industrialists, etc.
 - Those who are **affected** directly or through assets
 - Pedestrians, Cyclists, Police man, Women, Tribals, Householders, Slum dwellers, etc.
 - Those who have **interest or influence**
 - Governments, Local bodies, Technologists, Experts, NGOs and Doctors

National Stakeholders

- Numbers will be very large
- Optimum solution is to have a small number who can represent various stakeholders and can reach out to their own constituencies to explain all the dimensions and solutions
- Stakeholders should also give feed back and identify how to balance the sacrifices against gains
- Also to evolve communication strategies

Role of Stakeholders

- Role of National regulators and policy makers
 - increasing **awareness**
 - Transparency and effectiveness in **standards setting**
 - Support to **experts and academia** for continuing research into the nature of air pollutants and measures to moderate their ill effects
 - Strengthening of the **monitoring network** to measure regional air pollution
 - Preparation of **policy regulations and their implementation and their review**

Role of Stakeholders

- Role of S&T Institutions and academia
 - to understand in advance the likely problems posed by more and more air pollutants and ways to prevent their emergence or to control them
 - Investigate socio-economic and health effects
 - Interact with and advise policy makers
 - Work in partnership with NGO's

Role of Stakeholders

What is the role of **business and industry** in the network? Is it to be passive or proactive in

- ✓ getting involved in academic studies and technological choices to discharge less wastes into the atmosphere
- ✓ self regulation to cut out wasteful practices and end of the pipe solutions which add to environmental problems
- ✓ Involvement with local communities, organizations for the poor and women and other stakeholders for an understanding of the effects of air pollution and what are the compromises to be made in production, distribution and marketing to become models of 'green business'

Role of Stakeholders

- What should **medical science** and clinical practitioners do - State of Epidemiological studies
- Role of **Agriculture veterinary** institutions - Impacts on vegetation, Animal health, Soils
- **Engineers and Architects** to look at corrosion of material and monuments

Mitigation

Cleaner Energy

Hydrogen Energy

SOCIAL BENEFITS

- create domestic jobs
- electricity to remote areas which are not in the national power grid

ECONOMIC BENEFITS

- eliminate our dependence on foreign oil
- solve our balance of payments woes
- export opportunities

ENVIRONMENTAL BENEFITS

- solve our air pollution problems
- eliminate oil spills
- reduce noise pollution

Water

Potential for Cleaner Energy

Naturally, renewable energy resources are abundant in the world
Available renewable energy resources are under utilized

Category	Potential (MW)
Current use	Less than 1.2% of economic potential
Economic	42,000
Technical	83,000

Hydropower potential in Nepal

Needs: Partnership

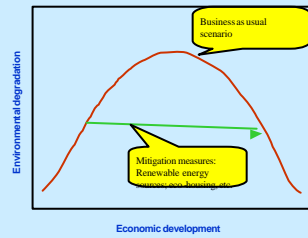
Political will

Technology

Finance

PARTNERSHIP

Turning the environmental degradation curve



All stakeholders should maintain the momentum generated at this forum and ensure that actions speak louder than words.