

*Implementation of  
Malé Declaration on Control and  
Prevention of Air Pollution and Its Likely  
Transboundary Effects*

**MALDIVES**

October 2004  
Network Meeting, Teheran



# *The Malé Declaration*

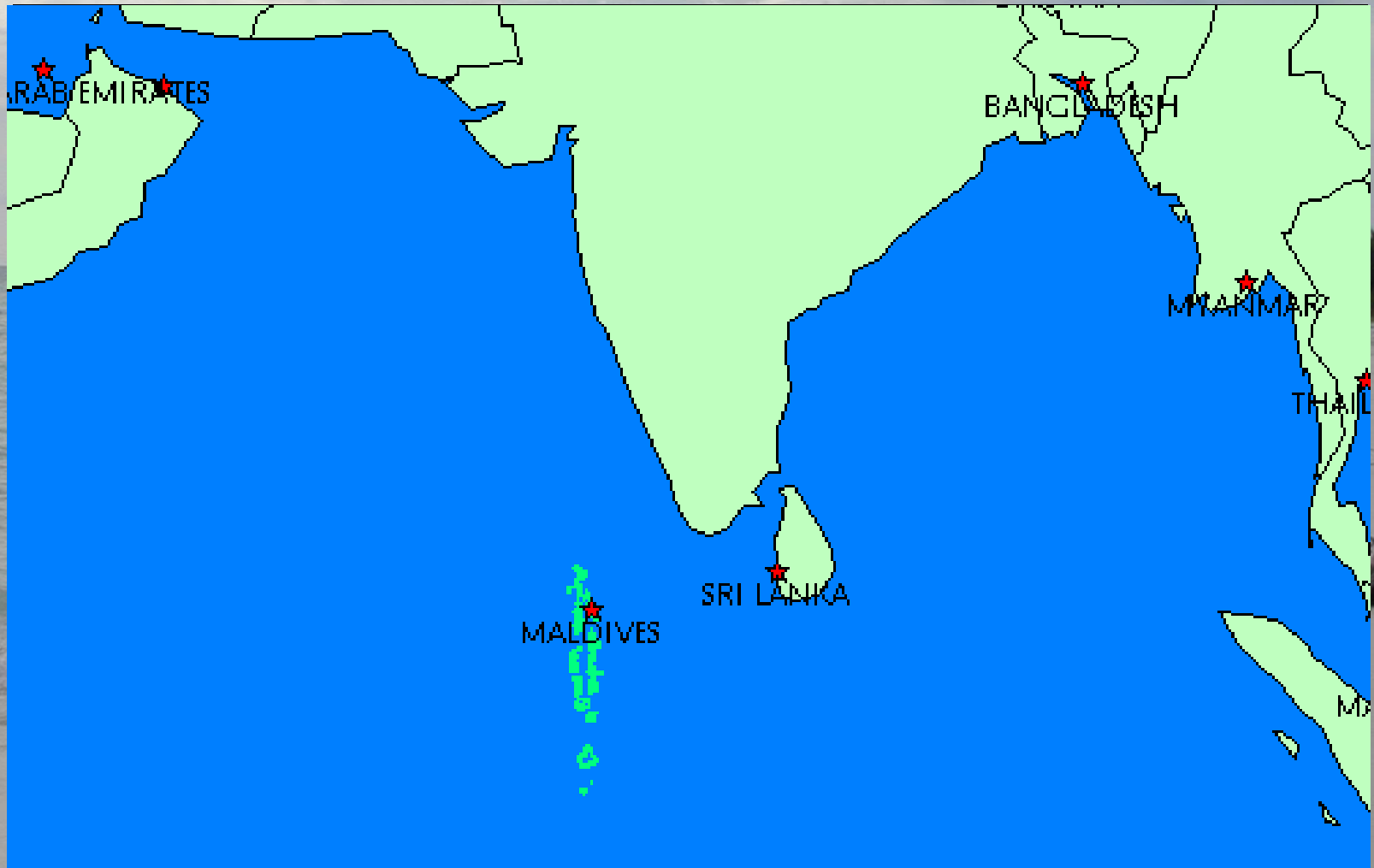
1. Introduction

2. First Phase Experience

3. Second Phase Experience

4. Activities carried out in air pollution monitoring

# Introduction



# Geography

- A chain of coral atolls 860 km long, 80 -120 km wide
- 26 geographical atolls
- Atolls are made up of non-contiguous reefs in a ring formations with faros and islands scattered within the atoll - land is not contiguous
- Over 5,000 separate reefs
- 1,192 islands
- 199 inhabited islands, 5 airports



# *Experience of First Phase*

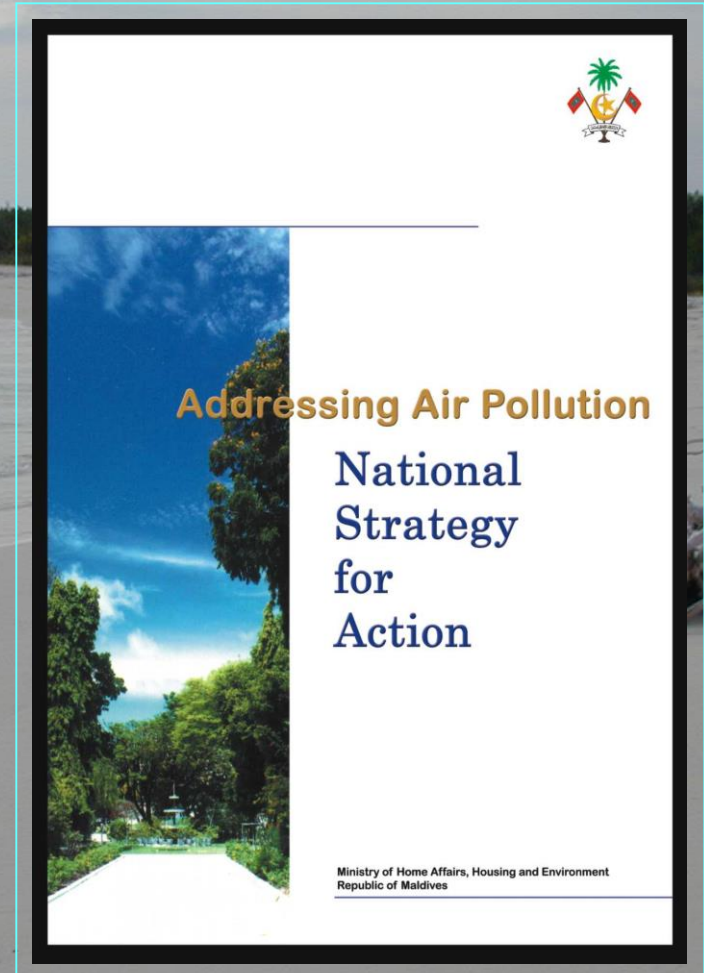
- It was found
  - Lack of adequate scientific knowledge of air pollution
  - Lack of clear understanding of air pollution
  - Air pollution is not clearly incorporated into the mandates of the government

# *Difficulties encountered*

- Lack of baseline data
- Insufficient
  - technical training
  - human resource capacity
  - managerial experience
  - in-depth awareness on air pollution and transboundary air pollution
- Lack of institution for air pollution monitoring and regulation

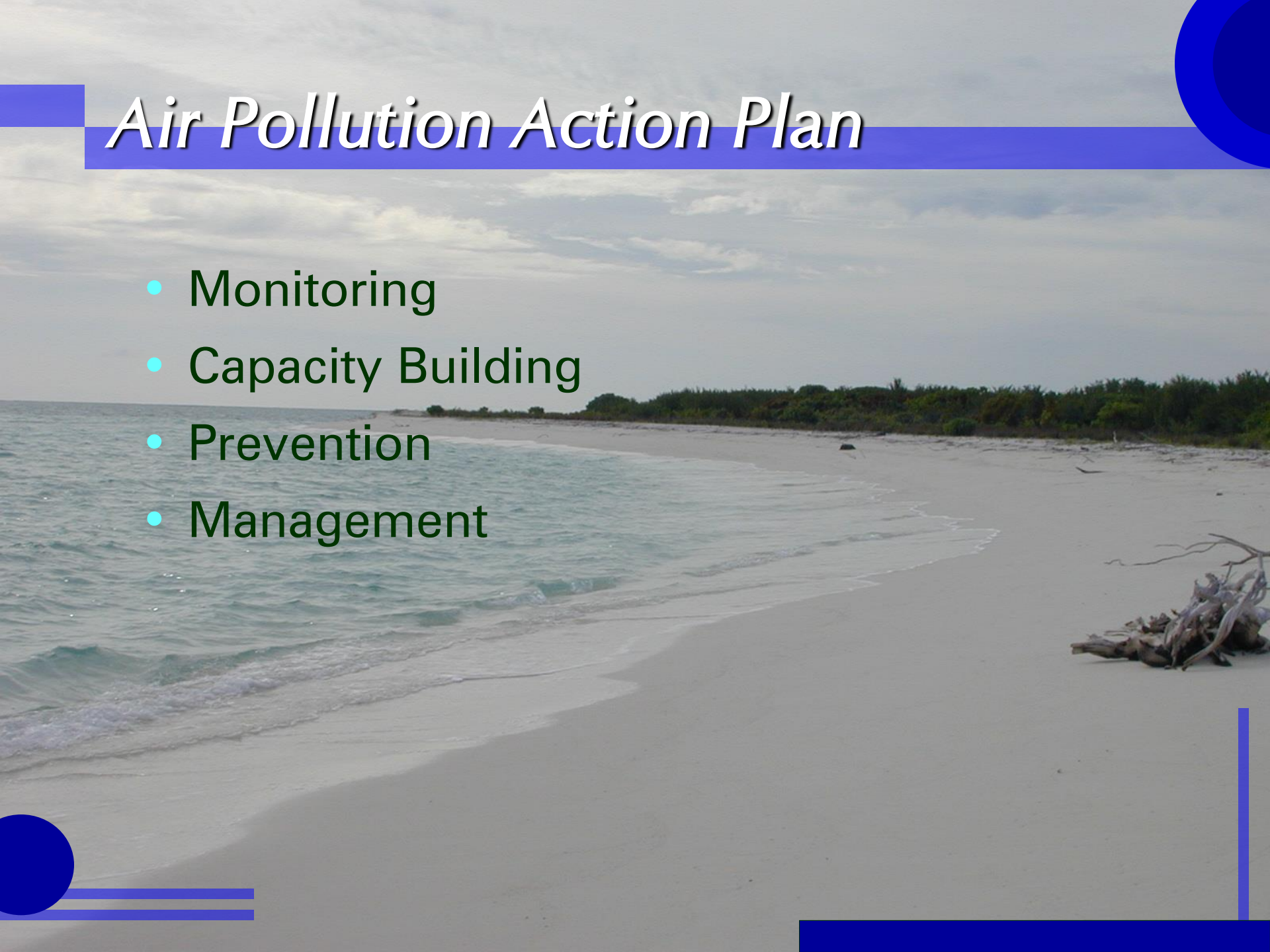
# Outcomes of the First Phase

- Created awareness on air pollution in the Government
- Development of an air pollution action plan



# *Air Pollution Action Plan*

- Monitoring
- Capacity Building
- Prevention
- Management





# *The Second Phase*

- Establishment of Transboundary Air Pollution Monitoring Station
- Initiation of monitoring of transboundary air pollution
- Capacity Building on air pollution monitoring and assessment

# *Monitoring and Capacity Building*

- Air pollution monitoring capacity is being developed at the Department of Meteorology
- Department of Meteorology is currently carrying out the monitoring of the transboundary air pollution through the passive samplers

# *Existing policy measures*

- Second National Environment Action Plan
- Six National Development Plan
- National Air Pollution Action Plan

# *Activities Planned for Air Pollution Monitoring*

- A new Air Pollution Monitoring Station
- Hanimadhoo Climate Observatory (HCO)

# Hanimadhoo Climate Observatory



# Hanimadhoo Climate Observartory



# Hanimadhoo Climate Observartory



# Hanimadhoo Climate Observatory



## Aerosol Instrumentation

Light Absorption – Magee AE-31 Aethalometer, 7-wavelength – C. Corrigan  
Light Scattering – TSI 3563 Nephelometer, 3-wavelength – J. Ogren  
Total Particle Concentration – TSI 3022A CPC – C. Corrigan  
Inorganic Composition – Filters, TSP and PM1 – D. Savoie  
Organic Composition – Filters, TSP and PM1 – J. Schauer  
Black Carbon – Filters, Aethalometer – J. Schauer, C. Corrigan  
Aerosol Optical Depth – CIMEL Sun Photometer – B. Holben  
Size Distribution (< 500 nm)\* – TSI SMPS – C. Corrigan  
Size Distribution (> 500 nm)\* – TSI APS or undetermined OPC – C. Corrigan

Single Particle Composition\*\* – ATOFMS – K. Prather

## Radiation Instrumentation

Global and Diffuse Radiation (0.2-3.6 $\mu$ m) - Kipp & Zonen CM21, CM22 type Pyranometers  
Direct Radiation (0.2-4.0 $\mu$ m) - Kipp & Zonen CH1 Pyrheliometer / Epply NIPs (quartz & calcium fluoride window)  
Broadband IR (4.5-42  $\mu$ m) - Kipp & Zonen CG4 Pyrgeometer  
Solar tracking - Kipp & Zonen 2AP-GD  
PAR (400-700 nm) - BSI / GU-2511 (*Global & diffuse*)  
Spectral Radiation (325-1075 nm) - ASD FieldSpec Handheld; Grating Spectrometer  
Aerosol Vertical Profiles - Dr. Spinhirne MPL / Dr. Sugimoto NIES Lidar  
Meteorological Parameters - R.M. Young instruments





Thank You