



**Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia**

Annual Network Meeting 2004

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11-12 October 2004  
Tehran, Iran

PLAN  
FOR THE  
PHASE III IMPLEMENTATION

## 1. BACKGROUND

In 1998, UNEP RRC.AP together with the Stockholm Environment Institute (SEI) drew attention to the possibility of impacts of transboundary air pollution in South Asia. This initiative led to the adoption of the “Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia” by eight participating countries—Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan, and Sri Lanka—at the Seventh Governing Council of South Asia Cooperation Environment Programme (SACEP). The initiative was funded by the Swedish International Development Cooperation Agency, Sida, as part of the Regional Air Pollution in Developing Countries (RAPIDC) programme.

The Malé Declaration’s objective is to aid the process of providing a clean environment through clean air. The Declaration calls for regional cooperation to address the increasing threat of transboundary air pollution and its possible impacts.

## 2. CURRENT STATUS

During Phase I of the Malé Declaration implementation programme, 1998-2000, a network was established, baseline studies were completed and action plans drawn up. The baseline studies provided valuable information on air pollution management programmes in the participating countries and clearly identified the gaps in the existing monitoring systems to understand transboundary air pollution. Consequently, a capacity building programme was initiated in Phase II of the implementation programme which included strengthening the monitoring network and training. National and regional level stakeholders consultations were also held during this phase. By the time this phase ends at national level, each of the participating countries will have at least one transboundary air pollution monitoring station and the required skilled manpower to do the monitoring. Capacity building activities initiated during the implementation of Phase II have made significant impact at the

national and regional level. Commitments from the participating countries are encouraging. Activities such as land purchase for the monitoring site in remote areas and recruitment of technical staff through the government system are some of the indications that the National Implementing Agencies are preparing to operate the monitoring system on a continuous basis.

## 3. PROPOSAL FOR PHASE III

### 3.1 Objectives:

The purpose of Phase III is to continue to promote the establishment of a scientific base for prevention and control of transboundary air pollution in South Asia and to encourage and facilitate coordinated interventions of all the stakeholders on transboundary air pollution at national and regional level. The specific objectives of Phase III include:

1. strengthen the regional cooperation and stakeholders participation under the Malé Declaration;
2. strengthen the capacity building programmes initiated during phase II;
3. enhance the capacity of of NIAs on emission inventory development and Integrated Assessment Modeling
4. to enhance the analytical and impact assessment capability at the national level through integration of findings from local pollution studies and conducting assessment studies;
5. provide decision support information for policy formulation and air pollution prevention ; and
6. raise awareness for action through targeted dissemination

### 3.2 Activities and Resource Requirements

Proposed activities and summary of initial consultation with the NIAs are provided in the Attachment 1. Resource requirements for conducting the activities are outlined in the Attachment 2.

# **ATTACHMENT 1**

## Attachment 1: Proposed Objectives, Activities and Expected Outputs of Male Declaration Capacity Building and comments by NIAs during the consultation over Phase III

| Results                                     | Objectives                                 | Activities  | Outputs/<br>performance<br>indicators   | Schedule                     | Results of Consultation with NIAs   |
|---|--|---|---|------------------------------|---|
| <b>1. MALE DECLARATION NETWORK ENHANCED</b> | <b>1.1 Strengthen regional cooperation</b> | 1.1.1 Conduct annual network meeting to steer the direction of the Declaration                                    | 3 annual network meetings (1.5 days in duration)  | Oct 04;<br>Oct 05;<br>Oct 06 | All countries supported the development of the network meetings to be held once per year.<br><br>A one day meeting is suggested after regional stakeholders and regional coordination meeting.  |
|   |  | 1.1.2 Represent the Male Declaration progress to the SACEP Governing Council                                      | Report submitted to GC meeting and feedback on response of GC   |                              | All countries supported the need for the coordinators (SACEP and UNEP) to report on progress in the Male Declaration to the Ministers at SACEP Governing Council meetings and report back   |
|   |  | 1.1.3 Conduct exchange programme  | Coordination of the Declaration<br><br>Exchange of experience between project managers of Malé Declaration at national level and Secretariat at UNEP; | 2 weeks-<br>3 month<br>stays | Nepal: willing to send someone<br>Maldives: will send someone<br>Bangladesh: Willing to send someone from NIA<br>India: probably someone from CPCB<br>Sri Lanka: someone from CEA<br>Pakistan: Will send someone<br>Iran: send one of technical experts<br>Bhutan: someone from NEC<br>Remark: 1) ToR and the duration will be discussed with the countries individually; 2) Exchange programme will be conducted in batches. |
|   |  | 1.1.4 Hold Regional Coordination meetings (of all initiatives operating in member countries of Malé Declaration ) | Meetings held for one day after network and regional stakeholder meetings   | Oct 04<br>Oct 05<br>Oct 06   | All thought it was a very good idea to collect all of the major studies being carried out in S Asia and ask them to present their activities to NIAs and allow the Government representatives from participating countries to ask the programmes for specific information and help.<br><br>The meeting will be held with NIAs, FPs, stakeholders and programme representatives together                                       |

| Results | Objectives   | Activities   | Outputs/<br>performance<br>indicators  | Schedule                       | Results of Consultation with NIAs  |
|---------|--|--|--|--------------------------------|--|
|         |  | 1.1.5 Develop Male Declaration Publications                        | 6 newsletters (bi-annual)<br><br>Publication on history and progress of Male Declaration | 2 times p.a.<br><br>Year 1 & 2 | <p>NIAs thought it was a good idea to have a booklet that contains the essential elements of the Male Declaration for use in promoting the Declaration to other policy makers and stakeholders.</p> <p>There were also suggestions that a series of Male Publications on different aspects of monitoring, emission, impacts in S Asia based on activities would be a good idea</p> <p>The Website could also be further developed to include various information on activities and results.</p> <p>Translation of Malé Declaration publications into local languages to be encouraged.</p> |
|         |  | 1.1.6 Review and evaluate Male Declaration Programme of activities | Report on progress by designated group consisting of NIAs and designated persons         | Year 2                         | <p>This was a suggestion by on of the NIAs to ensure that the activities of the Declaration are achieving their proposed purpose. This could be undertaken by the Facilitator based on consultation with NIAs.</p> <p>National evaluations will contribute to the regional level evaluation.</p>   |
|         | <b>1.2 Strengthen stakeholder participation under the Malé Declaration</b> | 1.2.1 Conduct annual Regional stakeholder Consultation             | 3 regional stakeholder meetings (held annually for half a day after Network meeting)     | Oct 04<br>Oct 05<br>Oct 06     | All thought this was necessary. The stakeholders would also be able to participate in the Regional Coordination Workshop. The total time for the Network Meeting plus Regional Stakeholder meeting plus Regional Coordination meeting will be 3 days, each year.   |

| Results | Objectives  | Activities   | Outputs/<br>performance<br>indicators   | Schedule   | Results of Consultation with NIAs   |
|---------|---|--|---|--|---|
|         |   | 1.2.2 Conduct National stakeholder consultations                   | 3 national stakeholders meetings;   | Jul 05<br>Oct 04;<br>Oct 05;<br>Oct 06   | <p><b>Nepal:</b> A meeting has not yet been held and the NIA is willing to host a national stakeholder meeting in next 3 yrs</p> <p><b>Maldives:</b> one already held, and hopes to hold one more in next 3 years</p> <p><b>Bangladesh:</b> One already held. Can organize a smaller one in next 3 yrs</p> <p><b>India:</b> One already held. Could organize one in the next 3 yrs</p> <p><b>Sri Lanka:</b> no meeting yet and NIA would like to organize one in next 3 years.</p> <p><b>Pakistan:</b> one will be held in late 2004/ early 2005 and hope to hold one further one in next 3 years</p> <p><b>Iran:</b> No meeting yet and NIA would like to hold one meeting</p> <p><b>Bhutan:</b> would like to hold one meeting in next 3 yrs</p>  |
|         | <b>1.3 Strengthen National structures to support the Malé Declaration</b> | 1.3.1 Strengthen the role of internal national advisory committees | <p>Number of active national advisory committees</p> <p>Monitoring data should be discussed by the NACs</p> | <p>To be held by countries as they see fit, preferably 2 x p.a.</p> <p>At least one per year</p> | <p><b>Nepal:</b> Will implement this when there are results to discuss</p> <p><b>Maldives:</b> Committee has been formed and will meet when there is information to discuss</p> <p><b>Bangladesh:</b> A committee has been formed but has not met regularly. Holding it two time p.a. seems acceptable.</p> <p><b>India:</b> established an advisory committee and conducted meetings.</p> <p><b>Sri Lanka:</b> There is a committee but it does not meet regularly, but they agree it should be 2 times p.a.</p> <p><b>Pakistan:</b> Committee not held yet but regular meetings are planned</p> <p><b>Iran:</b> Committee has been formed and has met once. It would be easier to organize these committees if the Malé Declaration was made more official</p> <p><b>Bhutan:</b> An advisory body for air pollution already exists and can also function the Malé Declaration committee</p> |
|         |   |  |   |  |   |

| Results   | Objectives  | Activities  | Outputs/<br>performance<br>indicators   | Schedule                | Results of Consultation with NIAs  |
|---|---|---|---|-------------------------|--|
| <b>2. MONITORING CAPACITY FOR MALE DECLARATION ENHANCED</b> | <b>2.1 Strengthen and enhance the Male Declaration pollution monitoring network</b> | 2.1.1 Conduct monitoring initiated during phase II and promote analysis of data | Monthly monitoring data from 8 countries<br><br>Research and assessment reports from NIAs on monitoring | April 2004 – March 2007 | <b>Nepal:</b> Problems of accessibility due to troubles near to monitoring station. Should resolve itself soon. Would like to publish results in international literature.<br><b>Maldives:</b> Station functioning.<br><b>Bangladesh:</b> Current station is temporary. Need to move the station to official site within the next few months<br><b>India:</b> The first Malé station is starting to operate now.<br><b>Sri Lanka:</b> Station is operating and data submitted.<br><b>Pakistan:</b> Station will be initiated in 2004/ early 2005<br><b>Iran:</b> Station is operating.<br><b>Bhutan:</b> Problems with electricity supply for high volume sampler. Need data back from IVL. Otherwise station operational<br>All expressed that this activity should be given priority during the next phase |
|   |   | 2.1.2 Establishment and maintenance of a regional database for Malé declaration | Regional database as part of Information Management System  | Apr 04 – Mar 07         | All agreed to send data regularly. UNEP will develop and maintain the database.  |

| Results | Objectives | Activities  | Outputs/<br>performance<br>indicators  | Schedule            | Results of Consultation with NIAs  |
|---------|------------|---|--|---------------------|--|
|         |            | 2.1.3 Strengthen remote Male monitoring sites for monitoring pollutant concentration and rainwater composition  | <p>Any problems with existing equipment fixed</p> <p>Enhanced meteorological equipment at sites installed</p> <p>Ozone monitoring introduced in all the Malé monitoring sites</p> <p>Analysis capability for rainwater composition established</p> | Jan 2005 – Dec 2006 | <p>Electricity supply was a general problem in many sites.</p> <p>Meteorological equipment was mentioned as an enhancement by a number of NIAs.</p> <p>All thought it is important to include ozone monitoring at the sites and this had already been discussed internally by many countries. Probably this will be passive sampling. Other methods can be explored by the MoC. Some considered that PM<sub>2.5</sub> should also be considered and the Iran NIA asked whether UVB could be considered.</p> <p>Need to ensure that all countries are able to analyse all ions in rain water.</p>   |
|         |            | <p>2.1.4 Introduce new monitoring sites in remote areas</p> <p>- subject to the availability of funds</p> <p>- some countries may have national funds</p> | <p>X new stations established using passive samplers and rainwater collection</p> <p>Passive sampler campaigns in different sites</p> <p>Fully equipped new sites set up and operating</p>   |                     | <p>All countries considered that additional sites would be useful. Some countries requested for full sites. Sites with passive methods of sampling were considered a good step forward.</p> <p><b>Nepal:</b> Interested in setting up a passive station</p> <p><b>Maldives:</b> Interested to place on island south of Malé</p> <p><b>Bangladesh:</b> Potential extra sites have been located</p> <p><b>India:</b> Interested in developing a number of additional sites</p> <p><b>Sri Lanka:</b> One more station on the Haton Plane would be useful</p> <p><b>Pakistan:</b> Interested in a passive station. Location not yet known</p> <p><b>Iran:</b> Plan for an extra station including active methods.</p> <p><b>Bhutan:</b> Would be good to include a new station near Phitsonik, the second largest town</p> |



| Results | Objectives                        | Activities  | Outputs/<br>performance<br>indicators   | Schedule  | Results of Consultation with NIAs   |
|---------|-----------------------------------|---|---|---|---|
|         |                                   | 2.1.5 MoC functions and Review of technical manual  | Revised technical manual  | Nov 04;<br>Nov 05;<br>Nov 06                                  | All aspects monitored at Malé sites need to be included in the Manual (such as ozone)<br><br>The manual also needs to be updated in line with experience so far e.g. use of correct plastics for wet only collector, the running of HVS for PM only as SO <sub>2</sub> and NO <sub>2</sub> below the level of detection and sites possibly moving away from borders for political and safety reasons.   |
|         |                                   | 2.1.6 Passive sampler inter-comparison  | Results of comparing Sri Lankan, Australian, Japanese and German and IVL passive samplers | Year 1  | All countries mentioned that it would be a good idea for passive samplers to be used that could be analysed in the country, which would reduce cost and increase capacity in South Asia. Pakistan uses and analyses Japanese samplers, India German samplers and in Sri Lanka, samplers based upon Australian and NBRO samplers are being used.<br><br>All countries agreed that IVL passive samplers should only be replaced where the accuracy of the alternatives are clear, and for this the inter-comparison is required. Countries also called for a consistent approach with common methods to be used in different countries. The MoC will discuss the transfer of analytical procedures. |
|         |                                   |   |   |   |   |
|         | <b>2.2 Training in monitoring</b> | 2.2.1 Conduct training and refresher courses for NIAs and personnel on monitoring transboundary air pollution | 6 training programmes held<br><br>Reports of the training programmes                      | Aug 04;<br>Mar 05;<br>Aug 05;<br>Mar 06;<br>Aug 06;<br>Mar 07 | Continued training was considered one of the more important aspects for the next phase. Repeated in-country training was also considered an important aspect.   |
|         |                                   | 2.2.2 Enhance reference laboratory function   | Reference lab. personnel trained at IVL and MISU. Quality of Ref. lab. results assessed.  | Years 1-3   | Most countries said they were happy for the reference laboratory to be located at AIT.  |

| Results | Objectives   | Activities  | Outputs/<br>performance<br>indicators  | Schedule        | Results of Consultation with NIAs  |
|---------|--|---|--|-----------------|--|
|         | <b>2.3 Implementation of QA/QC programme</b>                       | 2.3.1 Parallel analysis of samples at national and reference laboratories and analysis of standard samples by national laboratories | Annual report on QA/QC results from Reference Lab.                                     | Apr 04 – Mar 07 | All countries agreed to participate in the QA/QC procedure in the next phase.  |
|         | <b>2.4 study the movement of air pollution to monitoring sites</b> | 2.4.1 Develop training in trajectory analyses   | Trajectory analysis Manual<br><br>Trajectory analyses carried out by NIAs              | Years 1-3       | All were keen to receive training in trajectory analysis.<br><br><b>Nepal:</b> considers this necessary. ICIMOD and/ or Tribhuvan University can be trained. Can weather data be supplied? Can local weather data be used?<br><b>Maldives:</b> Very interested. would find someone from the Ministry who can be trained. This is a new area and so training from a basic level needed.<br><b>Bangladesh:</b> There are good meteorologists who can become involved.<br><b>India:</b> CPCB can take part in training<br><b>Sri Lanka:</b> Meteorology Department can take part. NOAA trajectory analyses have already been used in Sri Lanka<br><b>Pakistan:</b> DoE can take part<br><b>Iran:</b> interested in training. Can met data for the site be used to validate the ECMWF data?<br><b>Bhutan:</b> DoE interested in training |
|         |  | 2.4.2 Develop particulate matter characterization method manual (PIXE and chemical methods)   | Manual on particle characterisation developed<br><br>Particle characterization results |                 | This has been carried out in a few countries, and others have commented that this is not an easy or cheap task. There is a need for the MoC to consider robust and cost-effective methods that can be applied in the countries. Existing studies need to be compiled.<br><br>Some countries mentioned that soil dust is an important part and others that pollen analysis needs to be carried out to understand the allergenic health issues of this PM.   |
|         |  |   |  |                 |  |

| Results   | Objectives  | Activities   | Outputs/<br>performance<br>indicators  | Schedule        | Results of Consultation with NIAs  |
|---|---|--|--|-----------------|--|
| <b>3. EMISSION INVENTORY, SCENARIOS &amp; INTEGRATED ASSESSMENT DEVELOPED</b> | <b>3.1 Develop capacity in emission inventory preparation</b> | 3.1.1 Training workshops on emission inventory preparation and assistance in national emission inventory compilation | 3 training workshops<br><br>Emission inventory for each of the participating countries   | Apr 04 – Mar 07 | <b>Nepal:</b> ICIMOD will carry it out<br><b>Maldives:</b> Ministry of Environment will be able to do this<br><b>Bangladesh:</b> DoE has recruited a person who can do this<br><b>India:</b> CPCB will carry out the inventory and will welcome the training as this will not be an easy task due to lack of data<br><b>Sri Lanka:</b> CEA will carry out the inventory<br><b>Pakistan:</b> DoE can carry out the inventory.<br><b>Iran:</b> The DoE will carry this out<br><b>Bhutan:</b> There are people at NEC who can be trained  |
|   |   | 3.1.2 Revision/ updating of the emissions manual and workbook  | Updated manual with new pollutants added, improved emission factors and other improvements   |                 | Soil emissions (e.g. PM10) need to be included<br>VOCs need to be included (a pre-cursor for ozone formation)<br>PM <sub>2.5</sub> needs to be included<br>There needs to be an activity within this to include and develop new emission factors for South Asia  |
|   | <b>3.2 Develop capacity in emission scenario development</b>  | 3.2.1 Training workshops on emission scenario preparation and assistance in national emission scenario compilation   | Manual for scenario generation<br><br>3 training workshops together with emissions<br><br>Emission scenarios for each of the participating countries |                 | In all countries, it was suggested that the same organizations and in many cases the same persons that carry out the emission inventories would carry out the scenario analysis.<br><br>All agreed that this needs to be carried out but the methods for use are not clear and will require careful selection. In consultation with NIAs and also specialists in this field, it has been suggested that the best way is to evolve the methods through workshops as the emission inventories are developed.<br><br>Some scenario work has already been developed in countries, such as within the power sector planning process and this will need to be appraised and used where appropriate |

| Results | Objectives   | Activities   | Outputs/<br>performance<br>indicators  | Schedule | Results of Consultation with NIAs  |
|---------|--|--|--|----------|--|
|         | <b>3.3 Develop regional integrated assessment capability</b> | 3.3.1 Upgrade IAM & Include atmospheric transfer of PM and ozone, link to emission inventories | Stage II integrated assessment model including acidification, regional health and crop impacts |          | All welcomed the development of the IAM to include ozone and PM. It needs to be understood that the IAM is work in progress and care should be taken to ensure that it is not misused.   |
|         |  | 3.3.2 Install MATCH within IAM and house at UNEP   | Functioning MATCH model with trained personnel at UNEP   |          | Many NIAs consulted thought that installation of the model at UNEP was an important step. SMHI and UNEP have now had discussions and developed plans for the implementation. This means that any runs requested by NIAs can, in the future be carried out at UNEP, as well as by SMHI.   |
|         |  | 3.3.3 Training workshop on IAM, atmospheric transfer for NIAs                                  | 3 training workshops on IAM use and atmospheric transfer processes and modeling                |          | For training in use of the IAM the NIA representatives would receive training. For atmospheric transfer modeling NIAs would receive training and in addition the following institutions were named:<br><br><b>Bangladesh:</b> The Department of Meteorology would be appropriate people for training<br><b>Sri Lanka:</b> the Meteorology Department could become involved |
|         | <b>3.4 Develop urban rapid integrated assessment</b>         | 3.4.1 Training workshops for NIAs in methodology   | Training workshops   |          | There is an interest in receiving training in the methods for Urban Integrated Assessment. This would be a mixture of NIA personnel and organizations undertaking any application of the methods.  |

| Results   | Objectives  | Activities   | Outputs/<br>performance<br>indicators  | Schedule     | Results of Consultation with NIAs   |
|---|---|--|--|--------------|---|
|   | capability  | 3.4.2 Application of methods to X cities   | Urban Integrated assessment model functioning for X cities with estimates of health/ corrosion and crop damage |              | <p>There are a number of questions asked about the methods, which will be answered shortly. These are some of the comments:</p> <p><b>Nepal:</b> Kathmandhu suggested. Some satellite imagery and digital; population density data already exists at ICIMOD who could apply the methods.</p> <p><b>Maldives:</b> not a priority</p> <p><b>Bangladesh:</b> DoE would like to apply the methods in Dhaka. DoE has GIS trained personnel.</p> <p><b>India:</b> Would like to see the report from Hyderabad. If used, it will not be Delhi but another, smaller, industrial city.</p> <p><b>Sri Lanka:</b> Would like more details of the method for level of commitment required. Would like to apply it to Colombo.</p> <p><b>Pakistan:</b> Will need to check on data availability for cities in Pakistan.</p> <p><b>Iran:</b> Would like to apply this to one of the 8 polluted cities in Iran, but not Tehran.</p> <p><b>Bhutan:</b> Will consult with planning department to determine their interest in participating.</p> |
| <b>4. IMPACT ASSESSMENT CAPACITY of NIAs SUPPORTED AND STRENGTHENED</b> | <b>4.1 Strengthen knowledge on impacts of air pollution on Human health</b> | 4.1.1 Assessment of impacts of air pollution on health, and wider societal impacts, using concentration data and dose-response relationships | Report on the potential impacts of air pollution on health in different parts of South Asia                    | 1 year study | <p>There was general interest in this type of study, but the ideas need to be firmed up. Monitoring data from cities are required for exposure estimation, and the population of the various cities. The result would be an estimate for the health impacts using WHO dose-response relationships. There was concern that these had been derived from European and N American studies and may not apply in S Asia. Frank Murray reported at the Delhi workshop that they did, however, seem to have relevance in Asia from comparable studies undertaken. Economic assessments must be made relevant to S Asian conditions.</p> <p>Development of guidelines and methodologies.</p>   |

| Results | Objectives | Activities   | Outputs/<br>performance<br>indicators  | Schedule | Results of Consultation with NIAs   |
|---------|------------|--|--|----------|---|
|         |            | 4.1.2 Measuring health effects of air pollution through cohort, time-series or cross-sectional studies | <p>Studies on air pollution in schools on health impacts of AP on children</p> <p>Training packages on study design</p> <p>Reports on applying the health studies in schools of the different countries.</p> |          | <p>Potential projects have been devised in consultation with Frank Murray. These concentrate on children's response to air pollution involving school teachers to undertake measurements and record respiratory health of asthmatic/non-asthmatic children, or children in industrial areas compared to cleaner environments. Many NIAs were interested, but need to know resources required.</p> <p><b>Nepal:</b> People at Tribhuvan University have carried out health studies and could become involved.</p> <p><b>Maldives:</b> interested in attending training courses at this stage.</p> <p><b>Bangladesh:</b> several institutes could become involved including DoE, Ministry of Health and National Institute of Personal Medicine.</p> <p><b>India:</b> Several institutes can carry out the studies, including the National Institute of Occupational Health</p> <p><b>Sri Lanka:</b> CEA would need to use an outside body to carry out the work and funding for these becomes an issue</p> <p><b>Pakistan:</b> Respiratory diseases are very high in Pakistan and studies are required. The National Institute of Health can carry out the study.</p> <p><b>Iran:</b> The Ministry of Health and Education and DoE could undertake any studies.</p> <p><b>Bhutan:</b> This is interesting to the NIA for Bhutan and the work would have to be carried out by a body outside of DoE</p> |

| Results | Objectives  | Activities   | Outputs/<br>performance<br>indicators  | Schedule     | Results of Consultation with NIAs   |
|---------|---|--|--|--------------|---|
|         | <b>4.2. Strengthen knowledge on impacts of air pollution on crops</b> | 4.2.1 Identify and demonstrate where crop yield reductions are occurring | Report comparing measured/modeled concentrations with thresholds identifying areas at risk<br><br>Results of a bio-monitoring campaign showing where ozone affected indicator plants | 1 year study | <p>Most countries except Maldives expressed an interest in participating in studies of air pollution impacts on crops. More precise information about potential studies would be required. Several institutes were mentioned, but have not as yet been contacted.</p> <p><b>Nepal:</b> People at Rampur Agricultural station, where monitoring is carried out, could undertake the work. They also have growth chambers.</p> <p><b>Maldives:</b> N/A</p> <p><b>Bangladesh:</b> Bangladesh Agricultural Research Institute or Bangladesh Rice Research Institute could undertake the work.</p> <p><b>India:</b> There are various institutes for agricultural studies that could undertake the work.</p> <p><b>Sri Lanka:</b> The Agricultural Department could undertake the work</p> <p><b>Pakistan:</b> The National Agricultural Research Centre could do the work.</p> <p><b>Iran:</b> The Ministry of Agriculture may be interested in carrying out the work.</p> <p><b>Bhutan:</b> There are many agricultural institutions that could become involved.</p> |

| Results | Objectives | Activities   | Outputs/<br>performance<br>indicators  | Schedule | Results of Consultation with NIAs   |
|---------|------------|--|--|----------|---|
|         |            | 4.2.2 Assessing risks of yield reductions and their potential socio-economic impacts | <p>Results of Chemical protectant studies showing yields with and without protectants</p> <p>Results of transect studies showing the yield across a transect with varying pollution</p> <p>Results of applying dose-response relationships</p> |          | The same agricultural institutes mentioned above could carry out these assessments. More detail is required to inform NIAs of the exact nature of the studies. This will be developed and reported. |



| Results | Objectives  | Activities  | Outputs/<br>performance<br>indicators  | Schedule | Results of Consultation with NIAs  |
|---------|---|---|--|----------|--|
|         | <b>4.3. Strengthen knowledge on impacts of air pollution on corrosion</b> | 4.3.1 Assess corrosion at sites using exposure of standard samples      | Level of corrosion of stone, metal and painted samples at exposure sites with pollutant concentration data<br><br>Enhanced dose-response relationship from combined datasets |          | <p>There was considerable interest in the corrosion studies as such knowledge and activity is lacking in the region. The setting up of a rack can tell about the absolute level of corrosion, and with monitoring data can be used as part of the development of dose-response relationships. The need for monitoring data means it is best set up at an existing monitoring station site.</p> <p><b>Nepal:</b> There is a monitoring site in Kathmandu where the rack could be located. However, passive samplers may be required.</p> <p><b>Maldives:</b> interested in determining the degree of corrosion caused by sea salt as opposed to pollution.</p> <p><b>Bangladesh:</b> a rack can be placed at the monitoring site in Dhaka</p> <p><b>India:</b> the location of one rack has been agreed with SCI</p> <p><b>Sri Lanka:</b> A rack could be located next to the continuous monitoring station in Colombo</p> <p><b>Pakistan:</b> DoE could become involved locating racks at up to 5 monitoring stations that will be operating in a few years time.</p> <p><b>Iran:</b> Would like to put racks in N and S of Iran as well as in Tehran. In N and S they would be interested in the relative contribution of sea salt and pollution.</p> <p><b>Bhutan:</b> Would like a rack in Thimpu near the monitoring site</p> <p>Remarks: attempt will be made to locate the corrosion monitoring near the concentration monitoring sites.</p> |
|         |   | 4.3.2 Demonstrate corrosion risks using Rapid Corrosion Assessment Kits | Differential corrosion of samples exposed across an urban/industrial area with varying pollutant concentration   |          | <p><b>Nepal:</b> more information on corrosion kits required</p> <p><b>India:</b> interested in applying kits</p> <p><b>Sri Lanka:</b> Interested in applying kits</p> <p><b>Iran:</b> Consider kit a good idea and would like to use it</p> <p><b>Bhutan:</b> possibly interested</p>   |

| Results   | Objectives  | Activities  | Outputs/<br>performance<br>indicators  | Schedule                       | Results of Consultation with NIAs  |
|---|---|---|--|--------------------------------|--|
|   |   | 4.3.3 Training in stock at risk and economic assessment of corrosion damage   | Estimate of total corrosion damage to an area with economic value of damage  |                                | Many countries expressed an interest in training in stock at risk assessments, but were unsure whether they would be able to undertake such an activity in the next few years. CPCB considered this the most interesting corrosion idea for them.  |
|   | <b>4.4. Strengthen knowledge on impacts of air pollution on acidification</b>         | 4.4.1 Training in mapping sensitivity of soils to acidification and in time development of acidification methods                            | Map of sensitivity to acidic deposition based upon national soil maps and data and calculation of estimated time to acidify soil   | 3 training course in years 1-3 | <p><b>Nepal:</b> ICIMOD can do this and a soil map available at ICIMOD</p> <p><b>Maldives:</b> would like advice on potential impacts rather than undertake activities</p> <p><b>Bangladesh:</b> Soil Research Development Institute has a soil map that could be used for the study.</p> <p><b>India:</b> there are several soil institutes with maps that could become involved</p> <p><b>Sri Lanka:</b> The Soil Science Authority has soil maps, although they do not cover the whole country. CEA has GIS trained personnel.</p> <p><b>Pakistan:</b> There are people who could do the GIS manipulations and also soil maps and atlases available for use.</p> <p><b>Iran:</b> needs to check on data availability at the Soil Department. DoE has GIS and could take part in the study.</p> <p><b>Bhutan:</b> There is a soil maps and people who could undertake the work</p> |
|   |   |   |  |                                |  |
| <b>5. DECISION MAKING FOR PREVENTION AND CONTROL OF AIR POLLUTION SUPPORTED</b> | <b>5.1 Provide decision support information for policy formulation and mitigation</b> | 5.1.1 Study good examples for local, national and regional level legal and financial measures and provide options tailored for each country | <p>Reports on Legal and financial instruments and their potential for application to the national conditions in South Asia</p> <p>Report on good examples of application from around the world</p> | 2 year period                  | There was a lot of support from all NIAs for this section. There would be a need to tailor the ideas to the situations in each country.  |

| Results | Objectives  | Activities   | Outputs/<br>performance<br>indicators  | Schedule      | Results of Consultation with NIAs   |
|---------|---|--|--|---------------|---|
|         | <b>5.2 Case studies of practical options to prevent air pollution</b> | 5.2.1 Development of demonstration projects on Eco-friendly buildings                  | <p>Pilot projects on Eco-friendly houses (part-funding for implementation)</p> <p>Dissemination of design and potential and their potential to offset pollutant emissions</p> <p>Site visits with media coverage</p> | 2 year period | <p>The idea of carrying out case studies was well received by all the countries.</p> <p>Focus will be on prevention measures such as solar power.</p> |
|         |   | 5.2.2 Impact of using best available technology and techniques in the transport sector | <p>Impact of using Hybrid vs SUV or other vehicles on emissions</p> <p>Opportunities for mass rapid transit and emissions avoided</p> <p>Private sector companies engaged</p> <p>Site visits with media coverage</p> |               | Public transport will be encouraged.  |

| Results  | Objectives   | Activities   | Outputs/<br>performance<br>indicators   | Schedule        | Results of Consultation with NIAs   |
|--|--|--|---|-----------------|---|
|  | <b>5.3 Sector based approaches to pollution prevention and control</b> | 5.3.1 Understand opportunities for sector-specific emission prevention and control                                 | Report on each sector using mid-level level of detail<br><br>Strategy paper on future scenarios and results on options that can feed into the Malé declaration IAMs | Year 1-3        | Comments included that there is a need to highlight success stories in the different sectors to show positive examples. In addition, there is a need to analyse different attempts at promoting low emissions and assess how much they really cost, how effective they have been and whether they are readily reproducible  |
| <b>6. AWARENESS ABOUT AIR POLLUTION IN SOUTH ASIA RAISED</b> | <b>6.1 Raise awareness for action through targeted dissemination</b>   | 6.1.1 Development of media packages on air pollution   | Public awareness materials developed and disseminated to NIAs for them to use for promotion in their countries  | 2 year period   | All though the efforts to raise awareness to be a very important activity for the Male Declaration.<br><br>Many NIAs mentioned that if clips for TV could be produced then these could be developed into a feature for national TV.   |
|  |  | 6.1.2 Development of educational materials targeting primary schools, secondary schools, collages and Universities | Re-packaged information provided to education specialists for them to develop appropriate educational material  | Apr 04 – Dec 06 | Several people thought that material should be produced for schools. There was agreement that this might require linking up with specialist institutes who deal with material for schools and providing them with information which they could transform.<br><br>There was also discussion about developing University curriculum material and holding some courses for countries without such courses. |
|  |  | 6.1.3 Conduct regular lectures and consultation with senior government officials                                   | Material developed and lectures held for policy makers<br><br>Government officials consulted  | Years 1 – 3     | This was considered very important.   |

## **ATTACHMENT 2**

## Attachment 2: Proposed Objectives, Activities Tasks and Requirements of Male Declaration Capacity Building

| Results                                     | Objectives                                 | Activities   | Tasks  | Requirements and requests for information from NIAs   |
|---|--|--|--|---|
| <b>1. MALE DECLARATION NETWORK ENHANCED</b> | <b>1.1 Strengthen regional cooperation</b> | 1.1.1 Conduct annual network meeting to steer the direction of the Declaration                 | Prepare for meeting<br>Hold meeting<br>Meeting documentation and reporting                               | Typically 1 NIA and 1 FP representative at each meeting, taking 3 days.<br><br>Present the national status on the implementation  |
|   |  | 1.1.2 Represent the Male Declaration progress to the SACEP Governing Council                   | Prepare for meeting<br>Report to GC<br>Prepare report  | Provide update to the Ministries  |
|   |  | 1.1.3 Develop coordination of the Declaration  | General coordination<br>Organise exchange work at UNEP   | We need a name from NIAs for who will be available, when and for how long for the exchange<br>Detailed ToR will be developed in consultation with individual countries. |
|   |  | 1.1.4 Hold South Asian Regional Coordination meetings (of all initiatives operating in S Asia) | Organise meeting<br>Prepare for meeting<br>Hold meeting<br>Report on meeting                             | NIAs, FPs and regional stakeholders will be at this 1 day meeting<br><br>Review of other initiatives in South Asia  |
|   |  | 1.1.5 Develop Male Declaration Publications  | Newsletter<br>History of Male publ.<br>Male Website<br>Male series of publ<br>Press releases             | Input by NIAs to the newsletter, website and other publications will be appreciated.  |
|   |  | 1.1.6 Review and evaluate Male Declaration Programme of activities                             | Plan evaluation and develop initial report<br>Consultation by facilitation<br>Finalise evaluation report | NIAs and FPs will be possibly be contacted to discuss progress with the evaluation team   |

| Results   | Objectives  | Activities  | Tasks  | Requirements and requests for information from NIAs   |
|---|---|---|--|---|
|   | <b>1.2 Strengthen stakeholder participation under the Malé Declaration</b>          | 1.2.1 Conduct annual Regional stakeholder Consultation                          | Prepare for workshop<br>Organise workshop<br>hold workshop<br>prepare workshop report  | Present relevant national activities<br>Suggestions for important regional stakeholders can be sent by NIAs and FPs   |
|   |   | 1.2.2 Conduct National stakeholder consultations                                | Prepare for meeting<br>conduct meeting<br>prepare meeting report   | NIAs need to supply information about the plans for national stakeholder meetings over the next 3 years   |
|   | <b>1.3 Strengthen National structures to support the Male Declaration</b>           | 1.3.1 Strengthen the role of internal national advisory committees              | Organise meetings<br>Hold meetings   | It will be useful to supply the composition of the advisory committee and minutes of these meetings, when they occur.   |
| <b>2. MONITORING CAPACITY FOR MALE DECLARATION ENHANCED</b> | <b>2.1 Strengthen and enhance the Male Declaration pollution monitoring network</b> | 2.1.1 Conduct monitoring initiated during phase II and promote analysis of data | Send passive samplers to NIAs<br>Collect passive samplers and rainwater<br>Analyse rainwater samples<br>Use high volume sampler<br>Prepare and analyse results<br>Data verification by National Advisory Comm.<br>Send results to UNEP<br>Guidelines for data interpretation<br>Data verification by MoC | Continued manpower for the monitoring sample collection and manpower for the analysis<br><br>Many countries intend to use the National Advisory Committees to verify the monitoring results |
|   |   | 2.1.2 Establishment and maintenance of a regional database for Malé declaration | Maintain database and add data<br>Produce periodic data reports  |   |

| Results | Objectives                        | Activities   | Tasks   | Requirements and requests for information from NIAs  |
|---------|-----------------------------------|--|---|--|
|         |                                   | 2.1.3 Strengthen remote Male monitoring sites for monitoring pollutant concentration and rainwater composition | Fix problems with existing stations<br>Install meteorological equipment where req.<br>Install and collect ozone passive samplers<br>Ensure capability to determine rainwater comp                           | NIAs need to explain any problems they have with their monitoring stations<br><br>Ozone passive samplers need to be set up and collected<br><br>Need to participate in the training programme and conduct analysis of rainwater composition in the country |
|         |                                   | 2.1.4 Introduce new monitoring sites in remote areas   | Set up new site place and collect Passive samplers<br>take rainwater samples from collectors<br>analyse rainwater pH, conductivity and comp.<br><br>passive sampler campaign<br>install high volume sampler | We need to know where the site will be. This needs then to be discussed with the MoC<br><br>There needs to be personnel available to collect samples and transport them for analysis   |
|         |                                   | 2.1.5 MoC functions and Review of technical manual   | MoC meeting<br>MoC to review manual and add new parts<br>MoC and others site visits<br>Other tasks as required  | Any requests and suggestions by NIAs need to be made to the MoC  |
|         |                                   | 2.1.6 Passive sampler inter-comparison   | Expose and collect passive samplers<br>Analyse passive samplers<br>Write report   | The format for this and who will carry it out needs to be determined   |
|         | <b>2.2 Training in monitoring</b> | 2.2.1 Conduct training and refresher courses for NIAs and personnel on monitoring transboundary air pollution  | Prepare regional training course<br>Hold regional training course<br>Report on training   | Personnel need to be available for training. Preferably the same persons should be sent for training to ensure consistency   |



| Results | Objectives   | Activities  | Tasks  | Requirements and requests for information from NIAs  |
|---------|--|---|--|--|
|         |  | 2.2.2 Enhance reference laboratory function   | Training of reference lab personnel at MISU/ IVL<br>Parallel analysis and blind sample for reference lab with IVL/MISU   |  |
|         | <b>2.3 Implementation of QA/QC programme</b>                       | 2.3.1 Parallel analysis of samples at national and reference laboratories and analysis of standard samples by national laboratories | prepare standard sample of rainwater<br>prepare standard sample of gas<br>Analysis of parallel samples and standard<br>Preparation of report by AIT  | NIAs need to send parallel samples to the Reference Laboratory several times per year.<br><br>They also need to analyse the standard samples and send the results to the Reference Laboratory                                |
|         | <b>2.4 study the movement of air pollution to monitoring sites</b> | 2.4.1 Develop training in trajectory analyses   | Develop training programme<br>Collect data for workshop<br>Write draft manual for trajectories<br>Hold workshop<br>Finalise manual and send to NIAs<br>Tasks for NIAs to develop trajectories for site for 1 yr<br>Further training workshop | NIAs need to nominate people who can take part in the training. Persons with a background  |
|         |  | 2.4.2 Develop particulate matter characterization method manual (PIXE and chemical methods)   | Choose method for use<br>Develop manual for method(s) chosen<br>Carry out analysis   | The methods need to be outlined. PIXE is considered a standard method and some countries in S Asia can carry out these analyses, but cost may be an issue<br>NIAs need to inform about their capacity to undertake analyses. |
|         |  |   |  |  |

| Results   | Objectives  | Activities   | Tasks  | Requirements and requests for information from NIAs  |
|---|---|--|--|--|
| <b>3. EMISSION INVENTORY, SCENARIOS &amp; INTEGRATED ASSESSMENT DEVELOPED</b> | <b>3.1 Develop capacity in emission inventory preparation</b> | 3.1.1 Training workshops on emission inventory preparation and assistance in national emission inventory compilation | Develop training material based on manual<br>Find out persons in each country and organise training meeting<br>hold training 2 x per year<br>Site visits as necessary<br>Data collection and inventory preparation   | NIAs need to inform which organisation and persons will undertake the emission inventory and receive training. Preferably two people will be nominated per country for training.<br><br>The emissions inventory can be carried out at different levels of complexity but will approximately require between a 25% to full-time position (depending on country and data availability).<br><br>The workshops will be 2 times per year and be 5 days in duration (this is for emissions and scenarios together) |
|   |   | 3.1.2 Revision/ updating of the emissions manual and workbook  | Revise emission factors based on new info and network<br>Include VOCs, PM2.5<br>Determine method for natural VOC emissions<br>Determine method for soil dust emissions<br>Include allocating emissions across region | NIAs will ideally help with the provision of information on emission factors or institutions able to provide such information.<br><br>NIAs are also recommended to provide feedback on the manual and so help to improve it.   |
|   | <b>3.2 Develop capacity in emission scenario development</b>  | 3.2.1 Training workshops on emission scenario preparation and assistance in national emission scenario compilation   | Develop initial document of approaches<br>hold session at initial emissions workshop<br>revise methods<br>Implement methods at workshops 2 x p.a.  | NIAs will need to provide the names and institutions for training in scenario development. These could be the same developing the emission inventories and the training will be held back-to-back with the inventory workshops.<br><br>NIAs will help to develop the methods based on their knowledge of the available data and conditions in their countries.   |

| Results | Objectives  | Activities   | Tasks   | Requirements and requests for information from NIAs   |
|---------|---|--|---|---|
|         | <b>3.3 Develop regional integrated assessment capability</b>    | 3.3.1 Upgrade IAM & Include atmospheric transfer of PM and ozone, link to emission inventories | Improve current version based on consultation<br>Run MATCH for ozone and PM2.5, and transfer coefficients for PM<br>Include health, corrosion, crop impacts<br>Link emissions, scenarios and options to IAM | NIAs will be sent the IAM and they will need to comment on how it can be improved to fulfil their needs   |
|         |   | 3.3.2 Install MATCH within IAM and house at UNEP   | Install model on Linux computer<br>Prepare met data<br>Train RRC-AP on MATCH model  |   |
|         |   | 3.3.3 Training workshop on IAM, atmospheric transfer for NIAs                                  | Develop training material for atmospheric model<br>Hold training in IAM and atmospheric transfer<br>Hold second training report on activity   | NIAs need to nominate someone who can receive training in its use.  |
|         | <b>3.4 Develop urban rapid integrated assessment capability</b> | 3.4.1 Training workshops for NIAs in methodology   | Make Malé manual applicable to urban scale<br>Develop training materials<br>Make contact with designated experts<br>Hold training workshops<br>report on activity   | Relevant personnel need to be available for the training workshops who will be applying the methods to cities, or who wish to build their capacity in this field. |

| Results   | Objectives  | Activities   | Tasks  | Requirements and requests for information from NIAs   |
|---|---|--|--|---|
|   |   | 3.4.2 Application of methods to X cities   | <p>Carry out top-down inventory</p> <p>Major point source inventory</p> <p>Land use mapping based on satellite image</p> <p>Passive sampler campaign</p> <p>Implement dispersion model</p> <p>Assess population density</p> <p>Determine health, corrosion, crop impacts</p> <p>report on activity</p> | <p>NIAs need to nominate a city for application</p> <p>Institutions with knowledge of the city have to be nominated who will carry out the assessment.</p> <p>Satellite images need to be procured for the city (1m in centre and 5m for suburbs).</p> <p>Capability in GIS is required to classify the satellite images and about 6 months will be required to develop the land use map and other GIS data, such as population distribution</p> <p>Personnel will be required to undertake a top-down emission inventory, install and run the TAPM model and undertake traffic counts (as required) and the passive sampler survey. They will also need to develop impact risk assessments according to the methods and write reports on results and assessing implications.</p> |
| <b>4. IMPACT ASSESSMENT CAPACITY of NIAs SUPPORTED AND STRENGTHENED</b> | <b>4.1 Strengthen knowledge on impacts of air pollution on Human health</b> | 4.1.1 Assessment of impacts of air pollution on health, and wider societal impacts, using concentration data and dose-response relationships | <p>Develop network of project members</p> <p>Collect pollution monitoring &amp; population data for cities</p> <p>Workshop on methods and application</p> <p>Enhancement of assessment</p> <p>2nd Workshop on methods and application</p> <p>Reporting and documentation</p>                           | <p>NIAs will need to nominate people who can undertake these simple studies on the potential impact of air pollution on health in cities and take part in workshops and training</p>  |

| Results | Objectives  | Activities   | Tasks  | Requirements and requests for information from NIAs  |
|---------|---|--|--|--|
|         |   | 4.1.2 Measuring health effects of air pollution through cohort, time-series or cross-sectional studies | <p>Initiate preparatory discussion of methods with network</p> <p>find schools willing to participate</p> <p>recruit required personnel in countries</p> <p>organise and hold training session in methods</p> <p>carry out monitoring of AP and health</p> <p>Maintain link with network</p> <p>Site visits in countries</p> <p>2nd training workshop</p> <p>Final workshop to analyse results and plan further activities</p> <p>Report on activity</p> | <p>NIAs will need to nominate:</p> <p>An epidemiologist responsible for the project (part-time over 2 years for management and assessment of results)</p> <p>A nurse who will support the project (12 months)</p> <p>A data manager/ statistician to input all data (6 months)</p> <p>Air quality monitoring personnel (6months)</p> <p>Approx 10 teachers to undertake measurements</p> |
|         | <b>4.2. Strengthen knowledge on impacts of air pollution on crops</b> | 4.2.1 Identify and demonstrate where crop yield reductions are occurring                               | <p>identify appropriate institutions</p> <p>Collect concentration data - Malé sites, models, other monitoring</p> <p>Develop thresholds for S Asia &amp; map areas at risk</p> <p>Finalise protocol for biomonitoring</p> <p>Hold first training workshop</p> <p>Initiate biomonitoring</p> <p>2nd training workshop</p> <p>final workshop to discuss &amp; analyse results</p> <p>develop report on activity</p>  | <p>NIAs need to nominate institutions to become involved in the crop yield assessment studies.</p> <p>Nominated persons will spend time at the workshops</p> <p>Biomonitoring estimated time:<br/> establish experiment – 5 days;<br/> tending plants – 8 days;<br/> harvesting – 8 days, and<br/> checking for injury 5 days<br/> Data analysis and report writing: 5 days</p>          |

| Results | Objectives  | Activities   | Tasks   | Requirements and requests for information from NIAs  |
|---------|---|--|---|--|
|         |   | 4.2.2 Assessing risks of yield reductions and their potential socio-economic impacts | Finalise preparation for yield reduction studies<br>Organise chemical protectant studies<br>Organise transect studies<br>Initial training for studies at workshop No. 1<br>Undertake field activities with site visits<br>Progress report at training number 2<br>report to final workshop<br>Develop final reporting of activity | Nominated people will attend the training workshop (8 days)<br><br><b>Chemical protectant studies:</b><br>Establish experiment: 7 days<br>Tending plants: 16 days<br>Data analysis and report writing: 5 days<br><br><b>Transect studies:</b><br>Establish experiment: 5 days<br>Tending plants: 16 days (over growing season)<br>Data analysis and report writing: 5 days |
|         | <b>4.3. Strengthen knowledge on impacts of air pollution on corrosion</b> | 4.3.1 Assess corrosion at sites using exposure of standard samples                   | Develop contacts with experiment practitioners<br>produce and ship samples<br>build rack according to specific instructions<br>installation during site visit<br>weighing, shipping and analysis at end of exposure<br>report on corrosion level and monitored AP   | NIAs need to nominate appropriate institutions and sites.<br><br>Site establishment: 5 days<br>Monitoring (on-going anyway)<br>Analysis and sending back samples: 2 days<br>Data analysis and report writing: 5 days   |
|         |   | 4.3.2 Demonstrate corrosion risks using Rapid Corrosion Assessment Kits              | Develop linkages with local collaborators<br>Develop & hold training<br>send out kits<br>workshop to assess results from network<br>report on activity  | NIAs need to nominate and institution to carry out the project.<br>Locate sites across urban area/ industrial area: 10 days<br>Install materials at sites: 5 days<br>Conduct monitoring at sites: 2 days per month collecting samples<br>Collect samples: 5 days<br>Wish and ship samples<br>Data analysis and report writing: 5 days                                      |

| Results   | Objectives  | Activities  | Tasks  | Requirements and requests for information from NIAs  |
|---|---|---|--|--|
|   |   | 4.3.3 Training in stock at risk and economic assessment of corrosion damage   | Develop manual<br>Develop training material<br>Hold training workshop<br>Hold workshop mid way<br>Hold final workshop<br>Report on activity  | Attendance of workshop is the requirement for this activity. The development of time required for stock-at-risk assessments can be discussed with SCI.   |
|   | <b>4.4. Strengthen knowledge on impacts of air pollution on acidification</b>         | 4.4.1 Training in mapping sensitivity of soils to acidification and in time development of acidification methods                            | Develop linkages with designated experts<br>Arrange and hold workshop<br>Develop further workshop<br>Write report on results   | NIAs need to nominate and appropriate institution for the acidification work<br><br>Preparing data for workshop: 10 days<br>Attendance of workshop No 1 : 5 days (where training and some GIS manipulations can be carried out<br>Further work in countries: 20 days<br>Final workshop: 5 days |
| <b>5. DECISION MAKING FOR PREVENTION AND CONTROL OF AIR POLLUTION SUPPORTED</b> | <b>5.1 Provide decision support information for policy formulation and mitigation</b> | 5.1.1 Study good examples for local, national and regional level legal and financial measures and provide options tailored for each country | Compile good e.g.s of legal & fiscal instruments<br>Assess the relevance to each country<br>Report to NIAs at Network meeting<br>Compile final report  | NIAs to help compile information and provide input to how good examples can be tailored to their situations.   |
|   | <b>5.2 Case studies of practical options to prevent air pollution</b>                 | 5.2.1 Development of demonstration projects on Eco-friendly buildings   | Participate in eco-house pilot projects<br>Assess implication of eco-house on emissions<br>Assess how policy can promote eco-housing concept<br>Consider low-energy commercial buildings<br>Write report | NIAs can provide information on useful case studies in their countries   |

| Results  | Objectives   | Activities   | Tasks   | Requirements and requests for information from NIAs   |
|--|--|--|---|---|
|  |  | 5.2.2 Impact of using best available technology and techniques in the transport sector                             | Consider effect of different classes of car on emissions<br>Consider potential of clean mass transit systems<br>Develop report and link to emission inventory   | How to promote public transport and cycle tracks<br>i.e. car not the only solution  |
|  | <b>5.3 Sector based approaches to pollution prevention and control</b> | 5.3.1 Understand opportunities for sector-specific emission prevention and control                                 | Report on potential for power sector emission prevention<br>Consider clear ideas in industry sector<br>Develop report on clear opportunities by sector  | NIAs can help in the development of sector-specific control and prevention options.   |
| <b>6. AWARENESS ABOUT AIR POLLUTION IN SOUTH ASIA RAISED</b> | <b>6.1 Raise awareness for action through targeted dissemination</b>   | 6.1.1 Development of media packages on air pollution   | Assess possible activities<br>Develop initial packages of information targeted at Media<br>Discuss with NIAs at network meeting<br>Improve package based on NIA suggestions<br>report on activity               | NIAs can help to design the activity and provide inputs. They can also make contact with national media and determine what can be done in their country |
|  |  | 6.1.2 Development of educational materials targeting primary schools, secondary schools, collages and Universities | Develop material for use at Universities<br>Develop material for use at Schools<br>Link with specialist environment education institutes<br>Develop and disseminate material in countries<br>report on activity | NIAs can locate institutions capable of developing course material in the different countries based on compiled information                             |



| Results | Objectives | Activities   | Tasks   | Requirements and requests for information from NIAs  |
|---------|------------|--|---|--|
|         |            | 6.1.3 Conduct regular lectures and consultation with senior government officials | Develop policy maker friendly material<br>Disseminate material to NIAs<br>Hold consultation with senior policy makers in each country<br>report on activity | NIAs to provide advice on the sort of material they need to discuss these issues with their policy makers. |