

PROCEEDINGS

NATIONAL STAKEHOLDERS FORUM ON MALÉ DECLARATION

14th December, 2004, Islamabad, Pakistan.

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Proceedings of the National Stakeholders Forum under Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia

14th December, 2004, Islamabad, Pakistan.

1. Preamble

Air pollution is an emerging environmental issue in Asia as it is in other parts of the world. In particular, emissions of sulphur dioxide and nitrogen oxides have been rising steadily over the past few decades. In addition, rapid growth of cities, together with associated expansion of industry and transport systems, has made the Asian region increasingly concerned with these emissions.

To cope with the issues of transboundary air pollution in South Asia a policy dialogue was organized by UNEP RRC.AP with the technical support from SEI and financial support from Sida in March 1998. The policy dialogue participated by senior government officials and scientists from South Asia agreed on a draft declaration on transboundary air pollution. The draft Declaration was discussed and adopted by Ministers of the Environment at the Seventh Meeting of the Governing Council of South Asia Cooperative Environment Programme (SACEP) in Malé, Maldives.

The declaration formalized an agreement to achieve intergovernmental cooperation to address the increasing threat of transboundary air pollution and consequential impacts due to concentration of pollutant gases and acid deposition on human health, ecosystem function and corrosion of materials. Besides laying down the general principles of intergovernmental cooperation for air pollution abatement, the Declaration sets up an institutional framework linking scientific research and policy formulation. Malé Declaration also makes provision for the cooperation among the key stakeholders in tackling the transboundary air pollution in South Asia.

2. The Forum

2.1 The Aim of the Stakeholders Forum

The stakeholders forum had three main aims:

- Increase awareness on transboundary air pollution;
- Share and receive stakeholders views and ideas on implementation of the Malé Declaration;
- Improve the information exchange between information generators and users.

2.2 Inaugural Session

The National Stakeholders Forum of the Malé Declaration was inaugurated by Mr. Javed Hasan Aly, Honorable Secretary, Ministry of Environment, who attended the Forum as Chief Guest. Mr. Surendra Shrestha, Regional Director, UNEP, Mr. Mylvakanam Iyngararasan, Senior Programme Specialist, UNEP, Regional Resource Centre for Asia and the Pacific and Ms. Naw Wah Wah Htoo, Programme Officer, UNEP, Regional Resource Centre for Asia and the Pacific, also attended the Forum.

The inaugural session started with the opening statement of Mr. Asif S. Khan, Director General, Pakistan Environmental Protection Agency (Pak-EPA). Mr Khan welcomed the Secretary, Ministry of Environment and the Regional Director, UNEP along with the distinguished guests for their participation in the Forum. While giving the background of the Malé Declaration, he explained the purpose of the National Stakeholders Forum. He hoped that this stakeholders meeting will expedite the implementation of Malé Declaration and will generate a better understanding among the stakeholders on the issue. The Director General also touched upon the issue of the recent fog phenomenon, especially in winter in Punjab, which is adversely affecting the agriculture and economy of the country. He emphasized that there is a need to study this phenomenon, which seems to be a transboundary issue on the western borders of Pakistan. Similarly, in Balochistan, there is the problem of high concentration of dust in air, which could also be transboundary in nature. While concluding his opening statement, he once again thanked the participants, especially Mr. Surendra Shrestha and the Secretary,

Ministry of Environment, for their participation. The opening statement by the Director General, Pak-EPA is placed at attachment -III.

In his opening statement, Mr. Surendra Shrestha, Regional Director, UNEP, thanked the Director General, Pak-EPA in working together with UNEP and especially on Malé Declaration since the very beginning. He also thanked the Secretary, Ministry of Environment for his keen interest and support in working together with UNEP for promoting environmental concerns. He deliberated upon macro issues, which have deep impact on air quality and human health. He emphasized that there is a greater need to work together on environmental issues so that waste generated could be minimized and to save this earth for the coming generations. The opening statement by the Regional Director, UNEP is placed at attachment -IV.

Mr. Javed Hasan Aly, Secretary, Ministry of Environment, in his address thanked the Director General, Pak-EPA for providing an opportunity to be in the Forum and to develop a better understanding on some of the major environmental issues. The Secretary very specifically thanked the Regional Director, UNEP, for his very thought provoking and meaningful statement encompassing some of the very significant matters confronting the world . The Secretary re-emphasized the resolve of the Government to work seriously on these issues. The Secretary also mentioned the approval of the Environmental Monitoring System in Pakistan, a project which would be on ground within a couple of years. This project will provide the required data with reference to ambient air and water quality, which will help in better policy making and effective management. The opening statement by the Secretary, Ministry of Environment is placed at Attachment -V.

2.3 Technical Session

The first technical session of the Forum was chaired by Mr. Abdul Latif Rao, Country Representative, IUCN Pakistan. The session started with the presentation of Mr. Iyngararasan, Senior Programme Specialist, UNEP, Regional Resource Centre for Asia and the Pacific. Mr. Iyngararasan briefed the group on the need for intergovernmental cooperation on transboundary air pollution in South Asia and provided the history and progress in the implementation of the Malé Declaration. He informed that capacity building is the major part of Phase II implementation of the Declaration. Under the capacity building program, monitoring equipment is being installed in each of the participating countries together with training on monitoring transboundary air pollution. To date, six countries have received their in-country training. Three regional level training programs have also been organized under the current phase. He also expressed the need to incorporate mitigation options such as renewable energy sources. The complete presentation is placed at Attachment-VI.

The second presentation was made by Mr. Zia-Ul-Islam, Director, Pak-EPA. His presentation mainly focused on the implementation of the Malé Declaration in Pakistan. The participants were informed about the activities which were undertaken in Phase I of the Malé Declaration and the impediments confronting them for implementing Phase II. He also highlighted efforts, which have been made so far in coordination with stakeholders like the Pakistan Meteorological Department and SUPARCO in finalizing the site for putting up the monitoring station. The suggested sites and the future course of action to overcome the difficulties in implementation of Phase II, were discussed. He informed the participants that the Director General, Pak-EPA has been pleased to approve the establishment of the National Stakeholders Committee. The committee will expedite the implementation process of Phase II and the forthcoming Phase III of Malé Declaration. The complete presentation of Mr. Zia-Ul-Islam is placed at Attachment -VI.

The third presentation was made by Dr. Badar Ghauri, SUPARCO on the Status of Air Pollution in Pakistan. He gave a brief introduction of SUPARCO with specific reference to monitoring ambient air quality. Dr. Ghauri stated that SUPARCO is

doing monitoring of ambient air quality since 1985 in both urban and rural areas. Through these studies SUPARCO has been able to gather some useful background data. SUPARCO has ample air quality data of almost all major cities of Pakistan. Studies on some trace elements have been carried out. SUPARCO has conducted aerosol studies also, including fog studies. Air quality is deteriorating because of ignorance and negligence. This is compounded by the alarming growth in vehicle population. One of the major concerns is the level of Particulate Matter (PM). The transboundary issue of smog/ haze that bring acid along is a recent phenomenon. He elaborated on the results of one of the recent study SUPARCO has been entrusted by ENERCON. This study is to conduct baseline data on air pollution of six major cities of Pakistan viz. Islamabad, Rawalpindi, Lahore, Karachi, Quetta and Peshawar. The finding of the study show ever deteriorating Total Suspended Particulate (TSP) & PM₁₀ levels in Lahore and Quetta, which are way beyond international standards. The pollutant levels in the other cities are also high. SUPARCO is also studying the smog/haze phenomenon in Lahore since 1998. This includes causes of the smog, its chemical composition and its effect on the environment. One conclusion so far is high levels of sulfate and nitrates in this fog and its transboundary nature There is the need to urgently address this issue as the fog is affecting human health & the economy . The complete presentation of Dr. Badar is placed at Attachment-VI.

The fourth presentation was made by Dr. Shujat Ahmed, Associate Director General (ADG), PINSTECH. This presentation focused on air pollution monitoring and its health impacts. He stated that if we have to control causes, then first monitoring has to be effective. Various monitoring techniques were highlighted with comparison of destructive techniques viz-a-viz non-destructive techniques. He also informed the Forum ,about various technical facilities with PINSTECH, which are available for use. He also referred to some of the studies carried out by PINSTECH, including an aerosol study with reference to fog formation in winter in Lahore. He emphasized that there is a need to work on air pollution abatement as the health impacts are colossal. The complete presentation of Dr. Shujat placed at Attachment-VI.

The Chair summarised the presentations and then invited questions, views and comments from the participants. The clarifications sought included those on concentration of various pollutants in air and their inter-relation with other

pollutants, comparison of effectiveness of various analytical monitoring techniques etc.

The 2nd technical and concluding session was chaired by Mr. Asif S. Khan, Director General, Pak-EPA. Two presentations were made in this session. The first presentation was by Dr. Syed Abbass Shamsi on **“Impact of Air Pollution on crop in Pakistan”**. While inviting the presenter, the chair stated that Pakistan has an agro based economy and if we could establish a relation between pollution and crop yield, it will help in persuading policy makers in Pakistan to allocate more funds for pollution abatement and for sustainable development. Dr. Shamsi presented the impact of air pollution on crop, which according to him are the silent victims of these impacts. His team undertook a study where air pollution impact was studied in Lahore with international support. This study had significance, as Punjab is supporting almost 80% of the population of Pakistan and because of the pressures due to substantial growth in population, cities, vehicles etc. During the study period between 1992 and 2000, research was done on the visible and invisible injury to plants due to air pollutants. The methodology of the study was explained and the results of the study was presented. The complete presentation of Dr. Syed Abbass Shamsi is placed at Attachment-VI.

The last presentation was made by Mr. Iyngararasan, Senior Programme Specialist, UNEP, Regional Resource Centre for Asia and the Pacific. His presentation was focused on the prevention side of air pollution. Urbanization is becoming a major issue in Asia, putting pressure on economies. Economic growth is fuelling the growth of the middle class, who have a major share in increasing environmental pollution through their appetite for vehicles, housing etc. The national expenditure incurred on human health impacts due to air pollution is quite sizeable. There is need to develop alternate sources of energy, thus reducing reliance on fossil fuels. Hydrogen could replace conventional fuels, however the technology is still in the research phase. The other option is Hybrid cars, which are currently being marketed in USA & Europe. These Hybrid cars are yet to be introduced in South Asia as they are expensive. There is also the need to promote eco-housing. However, currently, most of the effort is on mitigation but the focus has to be on prevention. The complete presentation of UNEP is placed at Attachment-VI.

3 Discussion & Recommendation:

The forum provided the following recommendations:

- The forum agreed the need to work on regional level as there is commonality in issues, like that of PM, which is a problem faced by Pakistan as well as India & Nepal.
- The forum provided a rare opportunity to bring a good mix of expertise at one place and provided a valuable opportunity to work together both internationally & regionally. There is a need for regular meetings of stakeholders.
- The significant aspect of Phase III needs to be field work. Pakistan will certainly catch up with other regional partners in implementing the Declaration.
- The studies carried on air pollution impact on crops in Pakistan needs to be taken further.
- There is the need of awareness in policy makers & politicians.
- There is the need to establish linkages between environment & the economy in Pakistan.
- Focus on prevention aspects of air pollution such as hybrid car & fuel cell technology is required.

The chair thanked the participants for sharing their valuable expertise in this Forum and the Forum ended with vote of thanks from participants as well as organizers.

Opening Remarks of Mr. Asif S. Khan, Director General, Pak-EPA.

Mr. Javed Hasan Aly, Secretary, Ministry of Environment, Mr. Surendra Shrestha, Regional Director, UNEP/RRC AP, distinguished guests, ladies & gentlemen.

I welcome you all here in the first meeting of the National Stakeholders Forum under the Malé Declaration on Control and Prevention of Air Pollution and its Likely Transboundary Effects for South Asia. I particularly welcome the honorable Chief Guest who always supports Pak-EPA. Despite his commitments, the Secretary agreed to chair this workshop. I am grateful to you sir, for sparing your valuable time.

The Malé Declaration, is the product of policy dialogue organized by UNEP and after the fire in Indonesia, the Transboundary effect was felt greatly and there was concern shown that the Transboundary effect is affecting the economy of the country. Mr. Surendra Shrestha, the person behind the whole scene; he took it up and phase I of Malé Declaration was started and focal points were declared. Malé Declaration, Phase I was focusing mainly on awareness raising and collecting information by making National reports. So every country developed its national report and Pakistan also prepared its report and that report was appreciated. This was followed by Phase II of Malé Declaration. That includes establishment of continuous monitoring stations. Unfortunately, Pakistan lagged behind as a country although now the equipment has been received in Pakistan and customs clearance is being done here. The purpose was to study Transboundary effects particularly during the Monsoon when the air from one country is transported to the other and causes the phenomenon of acid rain or formation of some nuclides; which shall be studied. I hope now the things are in line and we would be able to complete the formalities of phase II. The phase III, which is also in its final stage is where the issue would be tackled. The Transboundary issue is getting importance and you might be aware of The Atmospheric Brown Cloud issue. ABC is not only present in Asia, it also present in other regions of the world. So this issue is getting importance and further studies are also being carried out.

In Pakistan, we have a very serious issue of haze formation, which needs to be given much attention because haze formation is a subject which is not easy to understand. There are so many complex reactions, which takes place because of the

presence of nuclides in air, but the main thing is sulphate, which comes from sulphur in diesel, oil and other sources and nitrogen oxides that form nitrates which emerges as small particles and then leads to ozone formation. The activated carbon, the elemental carbon ; these things leads to haze formation in air. The problem with haze is that on one hand it fades out all the colors and one cannot enjoy the beauty of nature. The other important issue is about health. Haze is considered to be a very serious issue because of its health implication. Respiratory illness is a product of haze formation. Then fog ; in Pakistan, the fog issue, for a couple of years, has started affecting our economy. Many flights are cancelled. Even this time the motorway between Lahore & Islamabad was closed due to heavy fog. Experts say that fog formation is also linked with haze. It produces an ideal scientific reason for the ground level formation of fog, because nuclides plays a part in the formation of fog . A five degree differential of dew point, a clear and still sky; this is the ideal situation for fog formation. Now for the last two years, we have very clear weather in winter, which also gives rise to fog. But in all these air pollution issues, the bottom line is to control pollution and that comes from motor vehicles, industries etc. These are the sources and there are some natural effects like dust, for which we have to stabilize ground level loose dust. The issue of particular matter is very serious in Pakistan and the levels of SPM in air have gone to 6~7 times than WHO standards. In Multan side where there is high aridity level, the level of suspended particulates has gone up to 1000 mg/m³ as compared to 150 mg/ m³ of WHO standards.

Sir, your presence here would help in the initiatives to stop formation of haze and ultimately its products. For this there is a need for very strong institutions. There is a need for more extensive studies. In Baluchistan, Quetta, flights have been cancelled because of dust particles. This phenomenon has been seen for the last two years. This could be the transboundary effect from Afghanistan or somewhere else. There is a need to have some regional studies on this part also.

Sir, the problem of air pollution is not localized; it is a regional problem and it needs a forum like the Malé Declaration, which provides a good opportunity where regional countries could work on such issues and to work with UNEP very closely for the future, and particularly on the issues associated with the Malé Declaration.

I once again thank you all, particularly my colleagues Ms. Naw Wah Wah, Mr. Iyngararasan and Mr. Surendra Shrestha, who have come all the way from UNEP.

I hope your stay in Pakistan would be comfortable and you would be able to find time to see beautiful Pakistan.

I thank you Mr. Secretary for being with us.

Attachment IV

Mr. Surendra Shrestha, Regional Director, UNEP, Opening Remarks

Secretary, Ministry of Environment, Director General, distinguished participants and guests.

With your permission Sir, I would like to present a macro view and build on what our Director General has just mentioned and then look at the impacts and then some policy implications.

First, if we look at recent history, if we go back 5000 years or so, we were mainly doing agriculture and using our own muscle power and were involved in domestication of both plants and animals; that was our main pre-occupation. During this period, mankind respected laws of nature and we lived in close harmony with nature, more or less. Then when we come to the 150 years of industrial revolution; we exploited natural resources, built bigger and faster machines to do that exploitation and to produce consumer goods and in the process, generated lot of waste and we consumed the goods which again produced lots of waste. So during this period, I think we were not looking at the laws of nature. We were exploiting it and disturbing the laws of nature and all the gurus and scientists tells us that if we look at the future and if we reach there, we have another 5000 years for it. Our main pre-occupation at that time will be knowledge and wisdom. We would be able to crack the DNA code and have everything what we need; goods and services will be produced not by large factories, but by tinkering with molecules and atoms. But before we reach there, I think the big concern is the recent 150 years where we were pre-occupied with producing, consuming and following the old growth model which focuses only on the economy. We are going to disturb the cycle and the latest studies of IPCC , have predicted that we have about two generation time before we can take corrective measures.

This planet is very sick; land, air, water; any aspect that we look at. The scientific reports show very disturbing trends. The current scientific knowledge shows that we either need to migrate to Moon or Mars or this will be the future of our children or grand children. If we look at some of the manifestation, some of which the Director General has mentioned, we are releasing pollutants more than that nature can absorb; hence we having all these impacts. I just mentioned a few. I noticed some colleague from Japan. In Japan, this year, there were so far a total of 16 climatic

events that only happen once in 100 years and it has caused billions of dollars of damage. Same is true in Philippines; 25 climatic events that happen once in 50 years. Closer to home, our glaciers in the Hindu Kush Himalayas are retreating up to 50 meters per year and if we look again at the macro view from the Mekong, Brahmaputra, the Ganges, Indus, the two rivers in P. R. China and the two rivers in Central Asia; all originating from this mountain range and if we project this 50 meters retreat for another 50 years, it is going to have a grave impact on more than half the population of the world that lives down stream. So there are grave implications.

The ABC again was mentioned by the Director General; we have now changed the name from Asian Brown Cloud to Atmospheric Brown Cloud, after the political level discussion and now there is an impact study being done scientifically. Yes, it impacts health, crops yield; there is up to 20% sun light being cut out during the dry season in the main continent of Asia and with the reduction in sun light, there is a reduction in photosynthesis, there is a reduction in crop yield, impacting the food security. It is impacting the water budget along the eastern coast from Shanghai to Jakarta; more rain than usual. And these are the particulates and aerosols acting in the clouds and as the clouds move into the inner area of the continent, we will have little rain or continuous droughts and we will see the results in dust and sand storms and other issues.

If we look at the WHO report on health impacts each year; WHO estimates half a million deaths due to air pollution. So these impacts are huge and we need to act, not because we have external pressures, but because we as citizens or as individuals, our families are being affected and we need to act urgently.

At the national level, all the countries in this region are looking at economic growth but in recent discussions, we see that either we can have a sustained growth at a lower level or we can maximize growth. It is like get rich now hopefully, clean up later. But with population growing from 6 billion to the 9 billion projected in the next decade and our planet not getting any bigger and the resources that are there; land, water, biodiversity remaining the same, we do not have such luxury and hence a slower growth but a sustained growth is something that I think the political leadership needs to look at. And also from the government side, most of our countries are following a similar model globally where we are looking at 3 to 5 years of planning. Our Planning Commissions, our ministries need to look at 30~50 years, a longer time horizon than just 3~5 years. So at the global level, I think we have a very good model

and a good example. I think the Montreal Protocol is an excellent example that has worked that is showing result, where the science developed first, then came the global political agreement and also the agreement between the developed and the developing countries to build capacity and to act together. So we have the Montreal Protocol as a very good example.

At the regional level, the Director General mentioned the haze after the 1997 fire; we have the Asian haze agreement. This is a legally binding agreement that was first of its kind. We have EANET along East Asia; 12 countries participating with over 200 monitoring stations and then the Malé Declaration in South Asia being implemented in Phase I, II and III of which the Director General has mentioned.

While we discuss the technicalities and the scientific side, in order not to lose sight of the bigger picture, I on behalf of UNEP would like to recommend three areas that we need to persuade our governments so as to take our policies more towards prevention. We have been very good at reacting, We get sick, we go to the doctor; we take medicine and take rest. We have pollution we look at it and try to react; can we put legal measures in place? It is all reactive policy. Where we have the science and the knowledge can we not look at a prevention policy? Like keeping our health in order with exercise, good food healthy diet, so that the need to go to the doctor is less. We know that urbanization will be the mega issue for this region. More and more people are moving from rural to urban areas. We will have over 400 million middle class in Asia within six years: a projection from the demographer's side. With this middle class; they want a house, a car and if they want to live like citizens of USA may be two cars, and the Director General mentioned about the vehicular pollution. There are a total of 120 million vehicles estimated globally and 400 million more being added; imagine the magnitude of the pollution from the vehicles alone, let alone the manufacturing side and the technical side of it. So towards prevention, can we not look at zero emission houses? can we not encourage hybrid vehicles, cleaner vehicles? I understand there is a 400 % tax structure here. Could not the government lower tax to 200% for environmental friendly vehicles? Yes, they are little bit more expensive, but for a person if it is an equal amount, I am sure people will choose environmental friendly vehicles.

Secondly, we are again following the linear path, when we look at consumption of natural resources. We have industry, we produce consumer goods, we produce waste and more waste after we have consumed; it is a linear path. Could we

not learn from the laws of nature to go circular? In Japan, recently the 3 R's was promoted by legislation – reduce, re-use and recycle ; every company in Japan is required by law to do this. China is institutionalizing the circular economy from the federal level down to the county level. So there are home grown paths to sustainable development and we need to look at that.

Thirdly, regional cooperation as the Director General mentioned; environment does not stop at national borders, we need to look at promoting regional cooperation. I think with the Islamabad declaration of the SAARC summit, held here for the first time, there is a paragraph on environment. We need to take further, what the political leaders have done to promote environment across South Asia and beyond. Yes, with capacity building and technology transfer to strengthen our institutions, not only for policy making but also for policy enforcement and implementation.

In conclusion, I wish to thank all the participants. I also wish to thank our partners who are not here, the SEI, Sida and SACEP. I also wish to thank our other partners who are working with us, IUCN & UNDP, who are here with us; the Director General for hosting this meeting, he has been with us, with the Malé Declaration from the start and I wish to thank you for your dedication. We hope that the implementation, although a little bit, as you mentioned, late in Pakistan, we can catch up and implement now and do it better especially in the IIIrd phase and also wish to thank the Secretary. I think under your guidance, we as UNEP together with other UN agencies wish to promote this regional cooperation and with your advice & guidance, we need to do more and look forward for your guidance, Sir. Thank you.

Attachment V

Opening Remarks, Secretary, Ministry of Environment.

Director General, Asif S. Khan, Mr. Surendra Shrestha , Regional Director, UNEP, distinguished guests, participants in this National Stakeholders Forum.

A very good morning to all of you.

I am very sincere when I say that I am most grateful for having been invited this morning. If I had missed this opportunity, I would have missed a highly educative introduction to this forum. I am grateful to you Asif and particularly more so grateful to you Mr. Surendra Shrestha, for your opening remarks, which should act as a trigger for any conversion to the cause of combating pollution of all sort. Particularly, air pollution ,with which you are concerned. I wish this forum great success in its deliberations and I hope that the Ministry of Environment, the Government of Pakistan will be guided by the common wisdom that emerges from these deliberations.

I am really being educated by the introduction from Mr. Surendra Shrestha and one cannot be unmindful of the urgency with which the nations of the world have to react to a situation essentially of our own creation but to which we have to react and in the words of Mr. Surendra Shrestha not with reactive incrementalism; in our common pursuit we are generally reactive incrementalists; but with a proactive resolution of the situation, which in his opinion lies in prevention.

We are mindful of the challenges ahead of us. We are also mindful of the kind of awareness that we all have to develop and establish at the highest levels particularly in decision making at the decision making levels, wherein we have to demonstrate the importance of addressing environmental considerations and to ensure that the goals of enrichment and preservation of our environmental assets are integrated into all policies and guidelines and laws that nations or the world community at large, enacts for itself. We are mindful of the transboundary nature of air pollution itself and hence the need for a very collective approach to possible solutions in this particular area. The hazards to health and the economy have already been highlighted.

In the Government of Pakistan, we are very mindful of the importance of addressing air pollution. Pak-EPA has recently got a project approved by the Government just a few days back, for establishing air monitoring stations which will

help us in collecting data, turning it into information and using that information for guidelines in all laws & regulatory frameworks. In addition, I can share; rather it is at a very initial stage, but in the Ministry of Environment we are very conscious of addressing the problem of air pollution and Pak-EPA at this point of time is in the midst of preparation of a consolidated plan with a clear roadmap for addressing the issues of air pollution in Pakistan and we propose to lay before the next meeting of the PEPC scheduled for 28th December, 2004. We wish to lay before them our roadmap for addressing air pollution in Pakistan called the Pakistan Clean Air Program (PCAP), wherein we will identify the solutions to air pollution problems and then they are being addressed with a clearly laid roadmap because only then a program is defensible and implementable, and again a sustainable change is essentially incremental. Revolutionary changes have not historically proved to be sustainable, so we have to bring in a sustainable change, a sustainable improvement and therefore, we planned to have a roadmap wherein we will identify first the size of cities, say 5 million plus in 2 years time to control the public vehicles. We will be taking into consideration the interest of the industry; what is the size of the industry which is presently involved in it? What is the time it takes to replace? What is the economic life of the vehicles already on road and how can we take them slowly, newer vehicles from bigger cities to smaller cities and ultimately over a period of reasonable time, say 10 years, taking them off all together?

We are working on a timeframe and we want to go to our political bosses that they may approve this timeframe to fight air pollution and then we will have to get it into a legislation which would be essentially a guideline and then the legislation would need to be made by the sub-national governments and local governments and the federal government can provide a policy guideline. The education that I got in these introductory remarks will help me to sell this concept to our political bosses and for that alone I am very grateful, Mr. Director General, for having been invited.

For us, particularly in developing countries, this is not the easiest thing when, as you mentioned, we are all talking about merely in terms of GDPs & GNPs and revelling in growth rates. It is very difficult to sell objectives which have longer term benefits. But that does not take us away from our duty and I am quite sure that the political will in this country is also conscious of the environmental considerations and the Prime Minister, when he was Finance Minister, for the first time actually ordered

that no project will now be funded from the public sector development program until it is environmentally examined.

In this particular area of air pollution, we are already very mindful and I hope that the new year will bring in better news I wish the deliberations here again a lot of success and I thank you all for your patience.

Thank you very much.