INTIAL EU CONTRIBUTION TO CSD14 : AIR POLLUTION AND ATMOSPHERE

1. Background

The objective of this paper is to identify key challenges, obstacles and constraints to implementation as well as lessons learned and opportunities for progress in the thematic area of “Air pollution/Atmosphere” addressed by the Commission on Sustainable Development (CSD) 14th meeting and in preparation for its 15th meeting. The scope covers the European Community as well as the regional (UNECE) and the global level. Interlinkages between air pollution and the other thematic issues of the CSD 14/15, climate change, energy and industrial development, are also addressed. Separate papers will be developed on these other thematic issues as well as on the CSD cross-cutting issues. The European Commission is the EU lead party in the area of air pollution/atmosphere.

The JPOI Commitments relevant for air pollution/atmosphere are annexed (Annex 1).

2. Introduction

Air pollution (indoor and ambient) causes significant damage to human health and the environment in most countries. It also has an overall negative effect on economy and social welfare. The sources and levels of air pollution vary considerably between countries in Europe and globally. Action to mitigate the problems and achieve sustainable development has to be adapted to specific conditions in each country to be effective - no single solution will fit all purposes. The problems of air pollution are closely linked to the other issues addressed by CSD 14/15 - climate change, energy and industrial development, the latter including sustainable production and consumption.

Despite emission reductions from industry, vehicles and large combustion plants ambient air pollution in the EU causes presently severe damage to human health and ecosystems. The European Commission (Thematic Strategy on Air Pollution, September 2005) estimates that airborne particulate matter and ozone cause about 350,000 premature deaths annually in the EU. Air pollution also causes considerable damage to ecosystems - acidification of fresh waters and soils, ozone damage to vegetation and atmospheric deposition of nutrient nitrogen, causing loss of vegetation growth and loss of biodiversity. Other air pollutants, such as the ozone depleting substances (CFCs, HCFCs, halons and brominated hydrocarbons), cause depletion of the ozone layer which leads to increased ultraviolet radiation at the ground level harming human health and the environment.

In the EU and most other advanced economies, measures taken so far have substantially reduced the emissions of air pollutants. Emission sources beyond the control of these countries will proportionally be more important than
previously – examples include transboundary long range and hemispheric transport of air pollution and emissions from maritime shipping and aviation.

In developing countries (DC) and specifically least developed countries (LDC), indoor air pollution from heating and cooking (mainly with wood, dung and coal) is a major air pollution problem, damaging health of children at an early age and impacting on the general health of the population. According to the WHO, 1.6 million women and children die every year because of respiratory diseases caused by indoor air pollution. In some developing countries the use of coal in households also contributes to serious ambient air pollution.

In many DC and LDC ambient air pollution is of major public health concern, both through the direct health effect and as it aggravates conditions in sensitive groups and sick people (chronic respiratory diseases and infectious diseases). In addition to domestic sources also emerging transport, industry and power production contribute to severe air pollution problems in developing countries. A specific air pollution problem arises in many LDC from uncontrolled burning of wastes, such as household and agricultural waste but also industrial waste.

Air pollution is highest in the urban environment where most of the population lives. In this urban environment the various sources of energy production, industry, transport and domestic heating are likely to cause damage to health due to the proximity to people. The World Bank has estimated that about 30 percent of the poorest people live in urban areas today and by 2020 about 40 percent would live in urban areas. In the urban areas road transport is a major contributor to air pollution exposure to the population and especially the poorest people. The urbanisation process may lead to even higher health impact in future; the number of mega-cities (above 10 million inhabitants) has doubled over the last decade (presently 24 mega-cities). Also for other sizes of cities there is a rapid growth and particularly in Asia and Africa, the latter having the most rapid growths (up to 10 percent annually). The World Bank Clean Air Initiative is highlighting the effects of poor air pollution in cities and is presently building networks to share experience on good practices in air pollution monitoring and management.

Air pollution is strongly linked to climate change, since combustion of fossil fuels are important sources of air pollution as well as CO2. In addition, many air pollutants (e.g. ozone, fine particles and halocarbons) also influence radiative forcing and hence, climate. There are also links between measures addressing air pollution and energy and industry and vice versa. These issues cannot be dealt in isolation but should be dealt with in an integrated manner, both in the analysis of problems and in the policy options/instruments.


2 http://www.cleanairnet.org/cai/1403/channel.html
3. Key JPOI Commitments Where the EU wants to see Progress (in UNECE region and globally)

- Measures to reduce the impact of air pollution (JPOI para 39) need to be taken at the local and sub-regional level. However, cooperation between countries is also needed, since most pollutants are transboundary in nature and in some cases transported between the continents or globally.

An important message is that local, national and regional agencies/administrations need to work together. This is especially true for pollutants such as ozone and fine particles and their precursors as well as persistent organic compounds and ozone depleting substances.

- Significant progress is needed on all JPOI commitments. Some air pollutants have severe direct adverse effects on human health, others indirectly though impacting on the environment. High priority should thus be given to reducing atmospheric emissions of fine particles, sulphur dioxide, ammonia and nitrogen oxides, volatile organic compounds (VOCs), heavy metals (e.g. mercury and lead) and organic substances (e.g. pesticides and dioxins).

- In the UNECE region and globally, measures to reduce atmospheric emissions should include the application of updated and modern technology options (Best Available Techniques such as those determined in the Integrated Pollution Prevention and Control Directive and established in the BAT Reference Documents\(^3\) and Best Environmental Practices developed under relevant Conventions) and the use of cleaner fuels. The application of BAT effectively reduces pollution levels and gives major benefits for human health and the environment. Furthermore, demand of energy and transport and other goods must reach levels that can be sustained in the long term. Support to countries with economies in transition should include capacity building and assistance to finance measures (JPOI para 39a).

- In developing countries and LDCs, access to affordable, safe and environmentally friendly sources of energy is crucial to reduce the direct health impacts of indoor environment and ambient air pollution. Such a measure would be a win-win-win situation for poverty eradication, a safe environment and improved health as well as for gender equity. The health chapter of JPOI (para 56 d) calls for action to assist developing countries in providing affordable energy to rural and poor urban communities, to reduce health impacts, in particular for women and children. There is a need for increased support for DCs and specifically the LDCs to implement such action. This would include improved energy efficiency and use of high quality fuel and renewable energy sources through knowledge transfer of best practices and sustainable technologies.

- Significant progress has been made to protect the Earth’s ozone layer mainly through emission reductions of ozone-depleting substances (ODS). (JPOI para 39b-e) Continued efforts are needed to further reduce the

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\(^3\) For further details on BAT Reference Documents see http://eippcb.jrc.es
production and use of ODS regulated under the Montreal Protocol and transposed into national legislative instruments.

- **Capacity building and financial assistance** (bilaterally and through Multilateral Environmental Agreements) for developing countries is needed to recover ODS already in products and on the market at end of life as well as to reduce and phase out existing consumption of ODS using non-ODS replacements.

- **In developed countries, further efforts are required** to reduce and possibly eliminate the use of ODS in asthma medication, in agricultural and food processing uses, in fire protection used in land and sea applications, and to recover ODS installed in various types of equipment at end of life. The elimination of ODS will benefit climate change issue as several ODS are strong greenhouse gases as well.

- **Further efforts** are required worldwide to strengthen efforts to prevent illegal trade in ODS, possibly by incorporating bans on the use of ODS into national legislation thereby reducing the incentive to smuggle ODS. Providing Parties keep to their commitments made in the Montreal Protocol, the ozone layer is expected to recover about 2050.

- **Integrated management of air pollution** is crucial to achieve environmental and health objectives. It is based on integrated assessment modelling to identify the technical and non-technical measures needed in each economic sector to meet the objectives to protect human health and the environment at the least cost for society. The measures needed for each sector may be identified and form a basis for cost-effective policy at national, sub-regional and regional level, and the linkages with other policy areas (energy, climate change, economic development) may also be assessed. One example would be the integration of structural measures such as fuel switch, increased energy efficiency, other technical measures and use of economic instruments in the transport sector.

Furthermore, the benefits of measures can be quantified and compared with the costs. The integrated management can be and has been applied at any scale, such as within the UNECE region (Convention on Long-range Transboundary Air Pollution) where the assessment of cost-effective technical measures has been the basis of setting emission ceilings within the EU and some other countries in the UNECE. Present development is to integrate also measures related to emissions of greenhouse gases in to the integrated assessment models so that the effects of joint air pollution and climate change policy options may be assessed. One example is the IIASA GAINS model for Europe.

- **For cities the integrated view should include development of integrated plans** for management of land use for agriculture, residential areas, industry and plans for sustainable and clean public transport systems and energy

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4 IIASA: International Institute for Applied System Analysis, Laxenberg, Austria; GAINS: Greenhouse Gas and Air Pollution Interactions and Synergies
supply. As uncontrolled urban sprawl and growth is one major issue in most DC and LDC authorities in these countries would need to address the issue of the urban environment in a consorted way.

- The knowledge based approach of integrated management of air pollution (JPOI para 38g-h) requires improved information of adverse impacts in the environment, obtained through environmental monitoring and observation, research as well as information of abatement options and their costs & effectiveness. Such information needs to be obtained in an integrated and harmonised way from a local to a regional scale, and in some cases on a global scale in order to be usable also in developing countries. An integrated part of the knowledge-based approach is the assessment of uncertainties and limitations of present knowledge. The recent European Commission Thematic Strategy on Air Pollution has the same approach in proposing cost-effective measures to reach environmental and health objectives.

- Monitoring of the environment and research are integral part of the knowledge-based approach. In the field of air pollution, there are several important programmes of the UN ECE Convention on Longrange Transboundary Air Pollution, such as the European Monitoring and Evaluation Programme (EMEP) and the effects oriented monitoring of the Working Group on Effects. In addition, monitoring and assessment in the context of WHO, WMO/UNEP programmes such as Global Atmospheric Watch (GAW) and the UNEP Ozone Panel and the joint UNEP/WMO Intergovernmental Panel on Climate Change (IPCC) has an important role in assessing the air pollution impacts on human health and the environment. In addition, the new initiative under intergovernmental organisation Group of Earth Observations (GEO) and the implementation plan Global Earth Observation System of Systems (GEOSS) and the European Union implementing programme Global Monitoring of Environment and Security (GMES) all play an important role in improved understanding of changes in the environment linked with human activities. This raises the question about coordination and optimal complementarity between the numerous global initiatives (see further under section 6).

There are several interlinkages between air pollution/atmosphere and climate change, energy and industry that need to be better understood through research, such as for instance, the role of air pollution in climate change and how climate change may impact on future air pollution. Win-win situations could be identified where measures in one theme (such as fuel switching from coal to gas in the energy sector) would be beneficial for other themes (such as air pollution and climate change). Also the trade-offs of policy options need to be assessed and understood; one example being increased energy use in the application of some air emission abatement technology options. Also the role of nitrogen in climate change (e.g. GHG nitrous oxide and its role in carbon sequestration), air pollution (NOx and ammonia) and through the effects on waters (e.g. nitrates and ammonium) are interlinked and needs to be addressed in an integrated way. Therefore it is crucial to pursue a coherent and integrated approach to nitrogen management5. This approach should be aimed at

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5 Consistent with the Declaration of the 3rd International nitrogen conference, October 2004, Nanjing, China.
minimizing nitrogen’s negative effects on our atmosphere and human health as well as at optimizing nitrogen’s beneficial role in sustainable food production and the environment.

4. Key Areas Where Progress Has Been Made

- The EU has been successful in pursuing objectives of health and environmental protection⁶. Air pollution (ambient and indoor) has reduced as compared to the mid-1980’s. However, **further action is needed to reach the long term objective** of achieving levels of air pollution that do not have significant negative impacts on human health and the environment.

- EU’s Sustainable Development Strategy (which is currently being reviewed) addresses the 3 dimensions of sustainable development in an integrated manner. This is also the underlying principle for the EU Lisbon Strategy.

- The **EU Energy Initiative responds to the need for action in developing countries** on sustainable and more efficient use of traditional biomass, as well as cleaner alternative fuels. It is a priority area in the current energy and development thinking, as well as in the recently approved 220 M Euro ACP-EU Energy Facility

- The EU has also been **supporting progress in developing countries** and countries with economies in transition, through capacity building and exchange programs to implement abatement technologies, with the introduction of cleaner fuels, cleaning of flue gases in industry and utilities (energy industry) as well as through introduction of emission standards on vehicles (e.g. EURO standards) and other product standards.

- The Montreal Protocol on “Substances that Deplete the Ozone Layer” is implemented in the EC through a Regulation⁷ that covers the production, import, export, placing on the market, use, recovery, recycling, reclamation and destruction of ODS; the reporting of information on those substances; and the importation, exportation, placing on the market and use of products and equipment containing those substances. A **progressive ban on the use of HCFCs**, and products that can be placed on the market that use HCFCs, will result in the elimination of “virgin” HCFCs in the Community by 2009, and all HCFCs by 2015. There are good prospects for common containment and qualification standards being developed in 2007 for ODS and non-ODS gases. Further use of methyl bromide is being curtailed by the use of alternatives and possible prohibitions under chemical legislation being developed. The EU is also the largest single contributor to the multilateral fund which is the financial mechanism used to support the funding of the phase out the use of ODS in developing countries.

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⁶ The European Commission has submitted its report on air policies on air pollution, this has been copied to the WPIEI and CSD contacts as well.

⁷ Regulation (EC) No 2037/2000
The reasons

- A key contributing factor for progress has been the introduction of environmental protection principles such as the Polluter Pays Principle, the Precautionary Principle, the Principle of Prevention at the Source, Integration of Environmental Issues in the Sector Policies and the use of Best Available Techniques (BAT) through legislation in the management of environmental protection and also applied in air pollution policy. Also the strict application of air quality standards to be achieved through abatement measures on the sources and effective management of energy, industry and transport demand has contributed to improved air quality in urban areas. The administrative capacity of a country is a key issue in applying these principles and air quality standards.

- One of the central reasons for advances in policy in the EU is a greater understanding by researchers, policy makers and the public of the causes and effects of air pollution. This understanding has provided support to policy makers in defining cost-effective measures to reach environmental and health objectives (effects-based approach). The work includes the refinement of modelling, monitoring and assessment techniques and tools and the willingness of policy makers to employ these tools. The effects-based approach applies as much to environment damage (e.g. “acid rain” and the “ozone hole”) as it does to health effects. Education on environment and environmental problems from an early age all through to university training therefore plays a key to increased awareness and public participation in decision making.

- Various forms of economic and fiscal incentives and assistance schemes from public resources to industry and the transport and energy sectors as well as investments in sustainable infrastructures (transport, energy distribution) are playing an important role in facilitating introduction of clean and modern production and abatement techniques.

- Decoupling economic growth (including poverty eradication, competitiveness and trade liberalization) from use of resources and degradation of the environment (here air pollution) can be achieved in the medium and long term. To achieve sustainable development, such decoupling is needed.

- Tools for integrated assessment and management of risks due to air pollution have played an important role in defining policy options to reach environmental objectives at the least cost for co-operating countries. Action has been taken both at local and national level, but also regionally as it has been acknowledged that air pollution is transboundary. The UNECE Convention on Long-range Transboundary of Air Pollution has played a key role in the ECE area in developing the scientific and technical underpinning of policies to address transboundary air pollution through an effects-based approach.

- The widening of markets for products has led to harmonised requirements of emission standards for products, such as vehicle emission standards and fuel standards. The large scale production reduces the cost per item produced, or unit sold.
Examples of best practice

- Impact assessment of policies and integrated management of air pollution, taking into account important economic developments (in energy use, agriculture production etc) allows achievement of environmental and health objectives in a cost effective way. Stakeholders - industry, NGOs and the general public – need to be involved in this process. A major lesson learnt is that it is necessary to address and involve all sectors that contribute to the problem so that cost-effective measures can be defined and taken. In the short and medium term this would include end-of-pipe solutions for the problems. Non-technical measures, such as demand management, economic instruments or bans, also need to be considered to reach the long term objective of sustainable development. Key measures and instruments to achieve the objectives of integrated management include:

  - **Stationary sources** (industry, energy production) are major contributors of air pollution in advanced economies and economies in transition. These emissions are abated in a cost-effective way through modern cleaning technologies and through the use of fuels with low content of sulphur and other pollutants. Permit conditions based on BAT, setting emission limit values and standards (emission per unit) are important elements in the integrated management of air pollution at the local and regional level. BAT has been established across the EU in technical briefing documents (BREFs) through an intensive and inclusive information exchange with countries and industries concerned. In the context of the Community Strategy Concerning Mercury, the specific problem of mercury emissions from combustion plants is addressed.

  - **Setting standards for products** such as emission standards for road vehicles (cars, trucks, busses, motorcycles) and other machinery (e.g. tractors, locomotives, non-road machinery, ships) secures low cost for implementation of abatement technologies and access of high performing products in a large market, such as Europe (EU and the European Economic Area). Such EURO standards are now applied also in other countries, i.e. in Asian countries such as China.

  - **Setting standards for fuels**, used by industry and for energy production as well as for machinery such as vehicles and machinery is complementary to cleaning of exhaust gases. In some cases the fuel quality is a prerequisite for the application of a specific clean technology. Market considerations for fuels are also important since most fuels are sold regionally (at the scale of a continent).

  - **Setting ambient air standards** (in directives) requires the competent authorities to safeguard clean air (or at least limiting the risk) to protect human health and the environment. Such standards and other environmental objectives play an important role in the integrated management of air pollution at the local and sub-regional level and ultimately at the national level. The integrated management would include air quality plans and programs at the level of the competent authority.

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8 COM(2005)20 final of 28 January 2005
Impacts will mainly follow in the medium and long term, with improved knowledge on sources of air pollution in the region.

- **At the national and local level a number of measures has been implemented also to address peak pollution (space and time).** These include temporary traffic restrictions in the event of risk of pollution episodes in winter time (smog) and summer time (photochemical smog). Local measures are also implemented by national and local authorities to reduce the general pollution in urban and other areas.

- EU experience shows that, for the transport sector, **non-technical measures related to traffic and mobility management** can contribute to a significant reduction of road transport impact in urban areas, particularly on air pollution. National and local measures include the development and implementation of plans for public transport urban mobility plans, zoning for pedestrians and traffic restrictions, traffic management to improve transport capacity, road pricing and incentives of newer cleaner transport and cleaner fuels, labelling of clean vehicles as well as various forms of car pooling and car sharing to reduce the number of vehicles.

- The role of the citizen or the individual should be emphasised. Consumers’ behaviour in the long term, such as changing travel or promoting local scale production and consumption can have a strong impact.

- Air pollution travels over national boarders and the transboundary aspect needs to be addressed regionally and/or globally, including through environmental agreements. Successful examples include the Montreal Protocol on ODS and the UNECE Convention on Long-range Transboundary of Air Pollution for classical air pollution (ozone, eutrophying air pollution, acid rain, heavy metals and persistent organic pollutants). Although the transport of pollution and precursors is on regional (and global) scales most sources are local and hence policies need to reflect this fact and ensure a connection between local-regional-global activities and processes.

**Opportunities at the CSD**

- The CSD provides an opportunity to share experience gained in a region like Europe (EU and non-EU states) and a possibility to use this experience more widely in other regions of the world, including promoting a more widespread application of the integrated approach to air pollution management and the application of modern production and abatement technologies, cleaner energy and transport services and systems.

- Urban planning and land use management are prerequisite for sustainable urban development. Urban planning has consequences for urban transport, energy use, location of industry and waste management, areas that all are closely linked to air pollution. Developing countries are in urgent need of improved infrastructure and services to the fast growing urban population. The CSD provides an opportunity to stress the importance of urban planning to reduce air pollution, reduce poverty and to increase the exchange of experience in these fields.
The CSD also is an opportunity to bring into discussion issues that are currently not covered and where international cooperation is needed, such as the role of maritime shipping and international aviation emissions. The maritime shipping and aviation are also dealt with by the IMO and ICAO respectively, but the CSD has to address these issues as well to reach objectives of sustainable development and air quality objectives. Also intercontinental and hemispheric transport of air pollution (presently addressed within the ECE CLRTAP where a task force will develop a fuller understanding of the issue, including the use of assessment models, monitoring data and emission inventories on the global scale for pollutants that travel very long distances).

The CSD also offers a possibility to address indoor air pollution in developing countries. Furthermore, the CSD offers an opportunity to address cross-cutting issues such as poverty eradication, sustainable consumption and production, education, health aspects and gender equity in relation to air pollution/atmosphere and sustainable development. Useful contributions could be provided by WHO on health and the ENERGIA network on sustainable use of energy, also several other international organisations of the UN could provide opportunities on cross-cutting issues.

The CSD offers a possibility to address air pollution from uncontrolled waste burning, particularly in developing countries, which might be a neglected area that needs more attention due to the hazardous nature of the emissions. Organic waste could be used as a source for methane, to be used in households for cooking.

5. Keys Areas Where Progress Has Not Been Made

Challenges and constraints impeding progress in these areas

The constraints and challenges are different for the different subsectors. They also depend on the level of economic development of a country, with major differences between advanced economies, economies in transition and developing countries, and the least developed countries. Thus, different strategies are needed to reduce air pollution and reach long term objectives of sustainable development, depending on the level of development.

Within the UNECE region, for the advanced economies within the EU and the EEA, the main challenge is to further reduce the atmospheric emissions in a cost-effective way and to reach long term environmental and health objectives. For industrial sectors, this requires the actual implementation of permit conditions based on emission levels achievable with BAT. For the stationary sources, not all subsectors are yet covered by policy measures and cost-effective measures to reduce emissions should be identified and taken. For transport sector, the main challenge is the increasing volumes of transport, generating both air pollution and other nuisances (noise, congestions) as well as using other limited resources (such as land) in a non-sustainable way. Both for stationary and mobile sources of air pollution a major challenge is to manage demand and to also “turn over the stock” of old existing plants and vehicles.
• For **economies in transition** the main challenges are different in that the financial means may be limited for improvements and that the administration at different levels is lacking the adequate resources. The potential of emission reductions by application of BAT (already applied in advanced economies) could reduce air pollution significantly.

• For **developing countries**, major challenges include securing access to affordable and safe energy services, reducing air pollution in ambient air and indoors. Lack of awareness of the problem and solutions, capacity and resources (human and financial) remain obstacles in achieving the JPOI commitments in this area. However, rather simple and low-cost measures can be taken to have major improvements of the environment. One example would be health awareness campaigns and shift away from the most unhealthy fuels and ways of burning for heating and cooking. Also waste burning should be addressed in such campaigns in order to improve waste management. Increasingly developing countries will use the same products as the developing countries do, however they do not have the proper waste treatment facilities or management practices. Viable options for waste management in developing countries need to be developed for different types of waste including industrial wastes and hazardous waste.

**Areas where progress has not been made because of lack of action rather than obstacles to action**

• Lack of effective policy instruments has hindered the application of several measures to reduce emissions of air pollution within the EU. Cost-effective measures to reduce levels of fine particles and ozone have be identified for emission stemming from agriculture (air emissions of ammonia), from small scale combustion installations (domestic heating, and small boilers), from the use of solid fuel (such as coal) of poor quality and from transport outside policy measures (shipping, aviation).

• The increase of shipping between continents and close to continents is becoming an increasingly important issue, both for climate change and for air pollution. The projections for air pollution over Europe indicate that marine shipping will be larger than all the land-based sources for SOx and NOx within 10-15 years. Only few measures that can reduce emissions from shipping are currently in place. Also aviation increases rapidly and increases the emissions of NOx globally and hence increases the levels of tropospheric ozone\(^9\).

• Implementation may be hindered because of real and perceived costs, political expediency and priorities, etc. To some extent this is due to lack of communication between the different levels of the administration but also due to lack of enforcement instruments in governments.

• Although air pollution mainly has impacts at the local and sub-regional level, some pollutants are transported over long distance and over national borders. Hemispheric emissions are now increasing due to rapid industrial development in Asia. A fuller understanding is needed on the very long distance transport of air pollution, such as hemispheric transport of air pollution.

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\(^9\) IPCC Special report on Aviation, WMO/UNEP 1999
pollution, and how it contributes to pollution levels in different parts of the world..

6. Policies and Actions We Might be Looking Towards at CSD15, and Contribution of Different Kinds of Actors to Improved Implementation

- Significant improvements towards the JPOI Commitments could be achieved for most countries. For air pollution, inter-linkages with climate change, energy and industrial development and other themes such as transport, agriculture and waste require that also the demand of energy, transport, agricultural products and other services, goods etc needs to be addressed. The link with the crosscutting issues of changing unsustainable consumption and production patterns is indeed very concrete.

- For advanced economies (OECD countries and a few others) the application of integrated management of air pollution jointly with other policy areas (climate change, energy and industrial development, integrated permitting based on emission standards achievable with BAT and enforced air quality standards based on WHO guidelines\(^{10}\) or other health expertise) will provide important instruments for reaching the objectives. In addition to more classical command-and-control strategies the use of market-based instrument such as emission trading schemes, may provide cost-effective ways of implementing measures. International and regional cooperation through various conventions and bodies (i.e. the Stockholm Convention on POPs, Geneva Convention on Long-range Transboundary Air Pollution and its protocols, The Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters and the Rotterdam Convention on PICs, IMO, ICAO, WHO\(^{11}\), WMO) would ensure common approaches and addressing the issue of transboundary aspects of air pollution. The Community could offer cooperation on the issue of capacity building to Asia, Latin America and Africa in the use of such integrated models for air pollution.

- In general the continued importance of innovation, as in the past reduction efforts, needs to be underlined. New technologies will continue to play an important role in the abatement of emissions. It is furthermore important for countries to work in co-operation and in partnerships, also with the business, to enhance and diffuse worldwide cleaner alternatives and technologies to prevent and reduce air pollution.

- Both for developed countries, economies in transition, and developing countries, although in very different situations, the links between environment and health objectives merit continued attention.

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\(^{10}\) WHO guidelines for Europe ([http://www.euro.who.int/air/activities/20050223_3](http://www.euro.who.int/air/activities/20050223_3)) with a global update to be released within short ([http://www.euro.who.int/air/activities/20050624_2](http://www.euro.who.int/air/activities/20050624_2)).

\(^{11}\) In particular WHO work on MDG. See [http://www.who.int/mdg/en/](http://www.who.int/mdg/en/)
The CSD can also offer opportunities to bring into discussion issues that are currently not covered and where international cooperation is needed:

- The **role of maritime shipping emissions** that have been excluded in earlier analysis and policy options and where there is currently no exhaustive regulation. This work has to be co-ordinated with the technical work and policy development of the IMO to avoid duplication of work.

- The role **intercontinental and hemispheric transport of air pollution** (presently addressed within the ECE CLRTAP where a task force aims at getting a fuller understanding of the issue).

- For economies in transition, the CSD could specifically consider ways to find the financial arrangements that can unlock the resources to implement the modern production and abatement technologies.

- **Particular concern should be paid to challenges and needs of developing countries and LDCs which often lack human and financial resources to ensure good governance.** Provision of affordable, reliable, safe and clean energy services based on renewable sources remains a key challenge. Indoor air pollution needs to be specifically addressed in this context in order to safeguard a minimum safety standard for the poorest people. Action could be envisaged both in improving the fuels moving away from solid fuels and improving the stoves and evacuation used for burning fuels.

- The **air pollution problems of the urban environment** and large cities need to be addressed through development of sustainable transport (public and private), introduction of clean vehicle fuels (unleaded and low sulphur) and vehicle maintenance and inspection, appropriate management of land use and urban sprawl and plans for continuous improvement of the conditions in the urban environment. Such plans for the urban environment should be part of the National Development Plans.

- Further cooperation is needed to develop and use the **knowledge based approach.** This requires strengthening the present monitoring of the environment through international programmes, such as those of the WMO, UNEP, EMEP. These need to be supplemented by the new initiatives of GEOSS, (in EU GMES), and other research oriented activities. The question needs to be looked at, by CSD, if coordination and complementarity between these numerous global in initiatives could be enhanced.

- In order to **promote the phase-out of ozone-depleting substances**, further efforts are required by countries to phase out CFCs for asthma medicines where CFC-free versions are widely available; that alternatives to methyl bromide exist for the majority of agricultural and food processing uses, thereby eliminating the need to use this ozone-depleting pesticide; that the majority of the uses of halon for fire protection in land and sea applications have alternatives which should be implemented in order to avoid the use of this highly ozone-depleting gas. Emphasis should be made on further efforts to **recover CFCs** installed in refrigerators and air-conditioning equipment at end of life in order to prevent further ozone layer depletion; and that additional
efforts focus on actions to prevent illegal trade through more widespread implementation of ODS import-export licensing procedures and vigilant monitoring of imports and exports. The CSD could provide a forum for further action in the phase out of ODS, in particular for aspects not covered by present international environmental agreements within the Montreal protocol.
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<th>ATMOSPHERE AND AIR POLLUTION (JPOI COMMITMENTS)</th>
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<td>Promote the systematic observation of the Earth’s atmosphere, land and oceans by improving monitoring stations, increasing the use of satellites and appropriate integration of these observations to produce high-quality data that could be disseminated for the use of all countries, in particular developing countries; [38g]</td>
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<tr>
<td>Enhance the implementation of national, regional, and international strategies to monitor the Earth’s atmosphere, land and oceans, including, as appropriate, strategies for integrated global observations, inter alia, with the cooperation of relevant international organizations, especially the specialized agencies, in cooperation with the Convention. [38h]</td>
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<td>Enhance cooperation at the international, regional and national levels to reduce air pollution, including transboundary air pollution, acid deposition and ozone depletion, bearing in mind the Rio principles, including, inter alia, the principle that, in view of the different contributions to global environmental degradation, States have common but differentiated responsibilities, with actions at all levels to: [39]</td>
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<td>Strengthen capacities of developing countries and countries with economies in transition to measure, reduce and assess the impacts of air pollution, including health impacts, and provide financial and technical support for these activities; [39a]</td>
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<td>Facilitate implementation of the Montreal Protocol on Substances that Deplete the Ozone layer by ensuring adequate replenishment of its fund by 2003/2005; [39b]</td>
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<td>Further support the effective regime for the protection of the ozone layer established at the Vienna Convention for the protection of the Ozone Layer and the Montreal Protocol, including its compliance mechanism; [39c]</td>
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<td>Improve access by developing countries to affordable, accessible, cost-effective, safe and environmentally sound alternatives to ozone-depleting substances by 2010, and assist them in complying with the phase-out schedule under the Montreal Protocol, bearing in mind that ozone depletion and climate change are scientifically and technically interrelated; [39d]</td>
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<tr>
<td>Take measures to address illegal traffic in ozone-depleting substances. [39e]</td>
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<tr>
<td>Strengthening and supporting efforts for the reduction of emissions through the use of cleaner fuels and modern pollution control techniques. [56c]</td>
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</table>
Promote an integrated approach to policy-making at the national, regional and local levels for transport services and systems to promote sustainable development, including policies and planning for land use, infrastructure, public transport systems and goods delivery networks, with a view to providing safe, affordable and efficient transportation, increasing energy efficiency, reducing pollution, congestion and adverse health effects and limiting urban sprawl, taking into account national priorities and circumstances. This would include actions at all levels to: [21]

Implement transport strategies for sustainable development, reflecting specific regional, national and local conditions, to improve the affordability, efficiency and convenience of transportation as well as urban air quality and health and reduce greenhouse gas emissions, including through the development of better vehicle technologies that are more environmentally sound, affordable and socially acceptable; [21A]

Promote investment and partnerships for the development of sustainable, energy efficient multi-modal transportation systems, including public mass transportation systems and better transportation systems in rural areas, with technical and financial assistance for developing countries and countries with economies in transition. [21A]