



ONE ATMOSPHERE

Final Declaration of the XVth World Clean Air Congress Vancouver, September 2010

World Clean Air Congresses provide a Forum for reviewing major trends and developments in atmospheric research and policy and for identifying the major challenges and opportunities that lie ahead. In previous years the Declarations with which Congresses have concluded, have highlighted such matters as Climate Change, the Arctic, Long Range Transport of Air Pollution, and the integration of air quality and climate policies, in each case some years before they have become matters of general concern.

This Declaration, approved following the XVth Congress in Vancouver in September 2010, goes wider. It reflects a belief that global environmental challenges have in recent years become steadily more severe and pressing, and that in three principle areas a paradigm shift in the approach to air quality policy and its relation to the wider global environment, is now necessary, urgent and achievable.

The Message of Vancouver

The theme of the Congress - Achieving Environmental Sustainability in a Resource-Hungry World - captured the fundamental environmental issue of this decade and set the context for a wide ranging review of atmospheric science and policy. The choice of Vancouver as the Host City proved propitious in highlighting the underlying nature of the challenge now confronting environmental policy.

Vancouver can claim important successes as one of the 'environmental cities' of the world. In many detailed ways it has sought to contribute to sustainability, from the bottom up, demonstrating the critical importance of local initiative. Even though it starts with great natural advantages and blessings, it can still rightly be seen as one of the leaders in urban environmental stewardship and sustainability. What it and other cities are doing is however important in another respect. It shows that even in a world ravenous for resources, progress in sustainable development can still be achieved. It thus provided a source of encouragement and hope for the Congress.

However, the success of local action must not obscure the need to face up to the big global environment challenges, ever present in the background, which will ultimately constrain even locally successful sustainable development. Here even Canada, with

a national record of environmental leadership to match the record of Vancouver at urban scale, faces - in common with the rest of the world - enormous challenges which the Union believes will not be overcome without fundamental shifts in air pollution and wider atmospheric policies. Further, air and atmospheric policies challenge ecosystems and biodiversity in a multiplicity of ways, most notably in its fragile Arctic regions. While air pollution may no longer pose as severe risks to human health in its cities as it once did, air emissions from around the globe place the future of the arctic regions, their inhabitants and eco-systems, in increasing jeopardy.

Acting locally and thinking globally is no longer enough. We must act globally. From its deliberations in Vancouver the Union has concluded that three paradigm shifts in air quality and wider atmospheric policy are necessary, timely and achievable: a new focus on the impacts of air pollution on the health of eco-systems and biodiversity; a new approach to climate change which, through integrating climate and air pollution policies, would complement the current focus on long-term abatement of CO₂ with a wider initiative on other climate forcing gases - ozone, methane and black carbon - which could deliver both major health benefits and mitigate near-term climate change; and, underpinning these two, a new effort to strengthen the institutions and processes for international co-operation on air pollution.

AIR POLLUTION AND ECOSYSTEMS

The message to the Congress from the Executive Secretary of the Biodiversity Convention reminded delegates that they were meeting in the International Year of Biodiversity. It provided a timely reminder of the scarcely conceivable scale of ecosystem degradation and species loss now occurring, with species declining at 1000 times their 'natural' rate. The need to address this issue more vigorously points to the first paradigm shift in atmospheric policy which the Union considers necessary.

The impacts of air pollution on ecosystems and the services they provide are profound and pervasive. They include loss of soil function, for example from acid deposition, reduction of yield of food crops and changes in the structure of plant communities and the functions they provide, for example cleaning the atmosphere and carbon sequestration. Air pollution, through its effects on, for instance, forests, also compromises the cultural value of landscape.

It was damage to the forests, lakes and aquatic life of Northern Europe that first stimulated modern concern with transboundary air pollution and the need for concerted international action. It appropriately reflects the depths of the links that pollution is now increasingly measured through biological impacts, most notably the impacts on lichen species.

The worldwide decline in biodiversity, now occurring at such an alarming rate, is due both to direct effects on species and indirect effect through degradation of the habitats that supports them. Whilst governments and international organisations struggle to agree measures that will halt the decline, pressures on ecosystems from

economic development and consequent changes in land use and pollution are intensifying as the global demand for resources grows.

Air Quality has so far been a relatively successful area of pollution control, but, in the face of this challenge, its underlying priorities need review. In recent decades there has been a very strong preoccupation with direct human health impacts, and this has yielded important progress which needs to be sustained. However, this now needs to be balanced by a new focus on damage to ecosystems, which threatens ultimately to have an even greater impact on human well-being than the more direct health effects, by reducing the benefits of biodiversity, reducing food security through crop damage and undermining the ecosystem services on which human communities depend.

Building on the statement of the Secretary to the Biodiversity Convention, the Air Quality community should promote a full and mutually-supportive partnership with scientists and policy makers addressing the issue of biodiversity. At the same time the Union urges Governments worldwide to take better account of the value of ecosystem services in assessing costs and benefits of changes in land use and in developments that might increase emissions of air pollution. The impacts of current levels of pollution on biodiversity should be continually assessed.

CLIMATE CHANGE AND AIR POLLUTION CONTROL

In addition to their direct health and other environmental effects, many forms of air pollution accelerate global warming. Ground level ozone not only causes death and respiratory disease and harms crops; it is also responsible for nearly a quarter as much warming as CO₂ emissions. Methane emissions contribute to ozone but also cause about a third as much warming as CO₂. Black carbon soot may contribute another third as much warming as CO₂, and, like ozone, is responsible for a substantial share of the death and disease from particulate matter.

The Union therefore considers that a further necessary paradigm shift in air quality policy is the integration of climate and pollution policies and the development of co-benefits strategies. In particular, a stronger focus on control of methane, ozone and black carbon sources could have a profound cooling effect as well as a salutary effect of human health and agricultural systems. Moreover, because these substances, unlike CO₂, have short atmospheric lives, controlling them potentially provides quick cooling in the next few critical decades to buffer the warming underway from CO₂ past and future. This is especially critical for climate-sensitive areas like the Arctic, which has warmed in recent decades twice as much as the planet as a whole, and the Himalayas, which are rapidly losing critical snow and ice cover.

In the long run, CO₂ holds the key to climate stabilisation, but strategic air pollution control can help delay and moderate harmful warming peaks. Integrated air pollution policies can therefore help moderate the changing climate and protect regions such as the Arctic as efforts to curb CO₂ begin to gain momentum. Such policies should be pursued for this reason, as well for protecting human health and the environment.

The Union, therefore calls on Member States, acting through the United Nations, UNEP and its other relevant agencies and programmes, to promote a major international initiative to address short-term climate forcers as a basis for integration of climate and air pollution policies and the development of a 'One Atmosphere' policy. In the light of presentations at the Congress the Union believes that progress here is necessary, urgent and achievable.

INTERNATIONAL CO-OPERATION

Neither of these challenges can be successfully tackled without a third paradigm shift - a fundamental strengthening of the framework for international co-operation on air pollution.

Air Quality Management has been one of the most successful areas of environmental policy, yet at the international scale it lags woefully behind what is needed. There have been important initiatives in recent years, particularly at the regional scale and on POPs and Stratospheric Ozone, but it remains the case that there is no effective international framework to tackle the most damaging transboundary pollutants - ozone and particulates; no effective links between climate and air pollution policy; no global voice for air pollution of the kind that IPCC offers the climate community; no 'Law of the Atmosphere' to parallel the UN Law of the Sea.

Presentations at the Congress - most notably on converging work by the Global Atmospheric Pollution Forum, the UNEP Assessment of Black Carbon and Ozone and the Task Force on Hemispheric Air Pollution - open the possibility of a step-change in the scope and effectiveness of international co-operation on air pollution. They have led the Union to the conclusion that we are potentially at a turning point in these matters.

A new Law of the Atmosphere is needed - or at least a new framework for international co-operation on air pollution and climate at regional, hemispheric and global scales. This need not require radical new legal instruments and institutions. It could be achieved by the effective integration of existing institutions and programmes - notably those of the two main international bodies in the field - the LRTAP Convention and UNEP.

The Union has concluded that it is time for the LRTAP Convention and UNEP, with the support of WMO and other relevant bodies, jointly to map out a common pathway to a more effective global framework for air pollution, providing integrated and cost effective systems for monitoring atmospheric changes, assessing issues and negotiating abatement strategies. Such changes could provide a new and stronger platform for progress in rescuing the world's declining ecosystems and forestalling catastrophic climate change.