

Prime Minister
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ENVIRONMENTAL POLLUTION IN A GLOBAL PERSPECTIVE

Today, despite the problems in the former Yugoslavia, Iraq, Somalia and Cambodia, the gravest threats to our future come not so much from military aggression as from our own way of living, from tacit acceptance that poverty and destitution are facts of life, and from short-sighted abuse of resources. We will have to face the next generation's inquiry into what we did when we realized what was at stake.

The hole in the ozone layer will increase the incidence of skin cancer, but it is human nature to close our eyes to this fact and to hope that individually we may be spared. But the odds are beginning to mount against our children and grandchildren. And if global warming remains unchecked, food production may suffer, and droughts, storms and floods may upset the delicate balance of production and transport systems. Island states may disappear and hundreds of millions of people living in low-lying areas may be affected. All this may happen because our generation has made extravagant use of resources on which we have no monopoly.

Our achievements as regards climate change, the transfer of funds for environmental measures in developing countries and the provision of resources to combat poverty will determine whether we are able to reverse current dangerous trends. In order to remedy the present situation, which is characterized by uneven, unsustainable development, we must improve the way in which the world economy generates benefits and the way in which we distribute the benefits of growth within and among countries. A broad range of coordinated measures must be implemented.

Debt relief is necessary. How can developing countries make the investments needed to provide health, education and basic amenities for their growing populations when they are suffocating under crushing burdens of debt and when financial flows are going from poor to rich countries?

And while economic policies are important, all evidence supports the assertion that social development depends on democracy and pluralism. Even the best economic policies will not suffice unless the human potential of a healthy and educated population is unleashed and unless people are able to participate in political life without fear.

I am grateful for the invitation to speak to this audience of specialists about my experience working in the field of environment and health for almost three decades. I entered

politics from the medical profession, having also studied public health in the United States in the mid-1960s.

At that time I experienced first hand how the debate in the US contributed to linking social, environmental and health issues. I saw how progress was made by people asking questions from a variety of angles. Ralph Nader's slogan "unsafe at any speed" focused on manufacturers' responsibility for the health and security of the consumer.

When I was asked by the Secretary-General of the United Nations to chair the World Commission on Environment and Development in 1983, I had already served as Minister of the Environment and Prime Minister. The Commission was asked to propose long-term strategies for achieving sustainable development by the year 2000 and beyond. The knowledge that the world was approaching thresholds which could not be exceeded was growing. However, environmental concerns seemed to be a luxury reserved for the rich countries. The Third World felt that it could not afford to take environmental considerations into account and that the wealthy North was imposing its values on the poorer countries.

A majority of the members of the Commission came from the South, reflecting the real world. Through a period of learning and sharing of experience we produced the report "Our Common Future", which was issued in 1987.

We found that international environmental policies would not be sustainable unless they provided people with more hope for a better future. All countries must share the responsibilities, but in a differentiated manner. The industrialized countries are imposing the greatest burdens on the global environment. They will have to reduce their effect on the global environment by changing their consumption and production patterns.

The report made it clear that economic growth was required in order to create the resources needed to alleviate poverty and solve environmental problems. But it would be folly to encourage the Third World to repeat the mistakes of the highly polluting growth periods of the 1950s and 1960s in the North. Consequently, a new kind of growth was needed, one less dependent on the overuse of natural resources. The distribution of the benefits of growth both within countries and among them would also have to be changed in order to allow the poor to escape from the trap of poverty.

Research would have to be promoted in order to accelerate the transition towards less resource-intensive production patterns, and the general population had to be included in the decision-making process in order to enable individuals to achieve better control of their own futures.

Thus our concept of "sustainable development" became a

political concept which we defined as "meeting the needs of the present generation without compromising the possibility of future generations to meet their needs". It requires solidarity within and across generations, within and between countries.

Throughout the 1970s, economics and environmental protection were seen as separate disciplines. The new thinking which emerged in the course of the 1980s recognized the links between various fields of politics and sciences. Ministers of Finance would have to recognize that their decisions had environmental ramifications. Similar recognition would have to penetrate the board-rooms of private enterprise, laboratories, schools and universities.

The United Nations Conference in Rio last summer represented a preliminary highpoint in a global learning process involving all sectors of human activity. While the decisions made in Rio were imperfect, the notion of sustainable development has been adhered to by every country in the world. But the road leading from Rio will be even more important than the road to Rio. We must now begin the hard task of implementing the principles and agreements which we signed there. Recognizing how interdependent we have become it is only by means of international cooperation that we will be able to move forward on the issues.

Air pollution is particularly relevant to a forum of specialists in respiratory diseases. I would therefore like to devote some time to problems relating to regional and local air pollution in Europe, since this cooperation is the most well-developed to date, and to how we are trying to solve them, on an international as well as a national level.

Some decades ago, air pollution was largely viewed as a local problem which it was believed could be solved by tall smokestacks to reduce ground level concentrations. Towards the end of the 1960s, however, this belief was shaken by the fact that serious acidification of precipitation was being observed over large parts of Europe, including areas far removed from the major industrial areas.

Since then, long-range transport of air pollutants and the ecological effects of acid rain have been studied in a number of research programmes in which Norway has played an active role. A project undertaken in the 1970s clearly demonstrated the degree of ecological damage to our lakes.

Substantial information is now available on emissions of air pollutants, transport and transformation processes in the atmosphere, deposition rates on the earth's surface, and ecological impact. As you know, the major air pollutants causing acidification are sulphur and nitrogen oxides. Furthermore, studies of the large-scale formation and transport of ground level ozone is an environmental problem of

international dimensions. Ozone is formed in the atmosphere through chemical reactions involving nitrogen oxides and volatile organic compounds, or VOCs, another acronym which has become an everyday word among environmentalists.

Reports on increasing damage to forests by air pollutants accumulated during the 1970s and the local damage around smelters and other emitting industries began to become a serious regional problem, particularly where fuels rich in sulphur were used in large quantities. However, as late as 1980, there was no international consensus on whether the increase in air pollution really threatened forest growth over larger regions.

The only way to counteract regional air pollution problems is to reduce emissions of air pollutants. Since air and precipitation quality in one country may be strongly affected by emissions in other countries, national abatement programmes can only achieve a limited improvement. International abatement programmes are necessary.

Norway and the other Nordic countries realized this as early as the beginning of the 1970s, and the problem was put on the agenda in various international organizations, the most important of which were the OECD and the United Nations Economic Commission for Europe.

The international policy response to scientific findings was slow in the 1970s. When I was Minister of the Environment in the last half of the 1970s, we had to work with very reluctant foreign governments which refused to recognize the increasing significance of the scientific evidence.

The first important breakthrough was the adoption in 1979 of the "Convention on Long-range Transboundary Air Pollution", which was the result of intense negotiations in which the Nordic countries played a leading role. However imperfect, the Convention provided an important forum for continued efforts to commit countries to reducing their emissions.

An important next step was the "Protocol on the reduction of sulphur emissions or their transboundary fluxes by at least 30 per cent", adopted in 1985. For the first time, specific international obligations had been agreed. However, a few countries with large sulphur emissions, such as the United Kingdom and Poland, did not sign the protocol. Thus, it took more than 15 years from the time the problem was brought to the attention of international organizations until a specific agreement was signed.

The sulphur dioxide emissions in Europe as a whole are now about 30 per cent lower than in 1980. The reductions have been significantly greater in Western Europe than in Eastern Europe; several Western European countries have reduced their emissions by more than 50 per cent. In Norway, emissions have

been reduced by 65 per cent.

The sulphur protocol has since been followed by the 1988 protocol on the control of nitrogen oxides. The basic obligation is to freeze NOx emissions at 1987 levels before 1995. In 1991 another protocol was signed on the control of emissions of VOCs prescribing a 30 per cent reduction of 1988 levels by 1999.

Thus far, the protocols have been based on equal percentage emission reductions for all countries involved, generally without any evaluation of whether this was a cost-effective means of improving the environment.

One major problem we will be facing in our further efforts to reduce harmful emissions is the fact that many countries have made substantial reductions in their emissions, often at great costs. Other countries which only later started to reduce their emissions have benefitted from a much cheaper per-ton reduction. Unless we are able to develop new ways of thinking on how to proceed, we risk stagnation, and the whole process will be endangered.

Clearly, the costs of reducing emissions will differ between various sources in different countries. Those sources which are run by modern state-of-the-art technology will be penalized if we demand the same additional reductions from them as we do from older, more polluting sources such as coal-fired power stations without cleaning equipment.

Uniform percentage reductions of emissions, whether very high or lower from the outset, are not a cost-effective way to achieve environmental goals nationally or internationally.

As an example, further reductions in Norway's low sulphur dioxide emissions cost ten times as much as similar reductions in Poland. We could improve the environment much more quickly and cheaply by promoting investment in a clean-up operation in Poland rather than in Norway.

In recent years we have been striving to establish one basic principle common to all environmental measures:

They must provide the maximum environmental benefit at minimum cost. We will all benefit if we first reduce emissions where reductions cost the least. This must be the primary objective of the new generation of environmental agreements.

The VOC protocol is one such step towards this new generation of agreements. It provides for differentiated reductions by allowing countries to include only the parts of their territories where emissions contribute significantly to transboundary fluxes.

In the latter half of the 1980s, work was initiated to provide

a better substantiated scientific basis for new protocols. The basic idea of the resulting "critical load approach" is to solve an environmental problem caused by transboundary air pollution by taking as a starting point the level of deposition or concentration that an ecosystem can tolerate without negative effects.

Based on the "critical loads" or "critical levels", which often will vary geographically, an optimal strategy for reduction of emissions can be elaborated using information on atmospheric processes and the cost-effectiveness of available control technologies.

Negotiations on a new sulphur protocol are now in progress, and the "critical load approach" is a central issue in these efforts. For policy-makers it will be a challenge to elaborate ambitious and cost-effective international agreements with differentiated commitments, aimed at improving the environment as much as possible for each dollar invested.

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The same air pollutants that cause transboundary environmental damage are known to have a negative effect on human health. I remember very vividly the first major incident of London fog - and the challenge as a student at Harvard School of Public Health of how to calculate the number of excess deaths caused by fog.

Air pollution undoubtedly has the greatest effect on the human respiratory system, and can lead to respiratory disease, bronchial asthma, and lung cancer. The increasing awareness of health problems caused by air pollutants led to the implementation of legislation in the 1950s and the 1960s to prevent the further deterioration of air quality. This has also resulted in a marked change in industrial emissions in cities and other urban areas in Western Europe during the last 20 years. There has been a decrease in the use of heating oils, and their sulphur content has been reduced. To illustrate this, the air contaminant concentrations in Oslo in the winter are now on average less than 10 per cent of those measured in the sixties. From 1977 to 1988 there was a decrease in the average annual sulphur dioxide levels in eight major Norwegian cities from 34 to 12 microgrammes per cubic metre.

However, increases in traffic have resulted in an increase in nitrogen oxides in air. Today nitrogen dioxide exposure and suspended particles seem to be the most important outdoor air contaminant problems in urban areas of this country. Although catalytic converters have now been introduced in new cars, reductions in total emissions will ultimately depend on future traffic development.

This means that urban planning, traffic differentiation and

improvements in municipal transport systems must be given priority in our quest to achieve lower levels of pollution.

In conclusion, I would say that our knowledge and understanding of the negative environmental and health effects of air pollution have increased and become much more widely recognized over the past two decades. European countries have also made efforts to reduce these negative effects of human activity, both nationally and by means of international cooperation. Still, much work remains in this field. International cooperation is central to solving the problem of transboundary air pollution and associated environmental and health problems. The nation state is too small an entity to solve problems which extend beyond national borders. We need more coordinated international measures by countries acting together.

Emissions of SO₂ and NO_x are regional problems. They will have to be solved by the countries of each region: Europe, which is reasonably advanced in its cooperation, North America, which also has high standards, and increasingly Asia. The worst air pollution is found in densely populated countries with a per capita income above USD 5000 a year. Billions of people may reach this level in the coming years and decades. These developments may be accompanied by a growing threat to the global climate and to the Earth's protective ozone shield, causing grave threats to health, food production and the total capacity of the Earth to absorb the effects of human activities.

All countries, rich and poor alike, must recognize that we all are in the same boat. There are no sanctuaries where we can hide, not even for the richest of the rich.

That is why I see no alternative to much stronger international cooperation, recognizing our mutual interdependence. Unless we are able chart a course towards more environmentally benign production and consumption patterns globally by means of technology transfer, financial assistance and investment in skills, we will all be in danger. Such cooperation was highly inadequate in the 1980s during the period of unilateralism, laissez-faire politics and exaggerated belief in the wonders that the faith in market mechanisms could create. We are now seeing clear signs that this period is over. The belief that we should take charge of our own future, that we need to govern has been restored.

We are compelled to manage the most important global transition since the agricultural and industrial revolutions - the transition to sustainable development. We need a better organized world community where we pool resources as well as formal sovereignty in order to obtain more real sovereignty and choices for the future, and make sure that we do not foreclose on the choices of future generations.