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## Address at the reception to mark the 50th Anniversary of the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

Vienna, 30 May 2006

Distinguished audience:

I feel privileged to be given the opportunity to congratulate UNSCEAR on its 50th anniversary and to express appreciation to the City of Vienna for hosting UNSCEAR all these years and for hosting this celebration.

I suspect UNSCEAR is one of the least understood acronyms in the world. When I told a friend that UNSCEAR had to do with atomic radiation, he said: "Good acronym, radiation is kind of SCARY".

We evidently need to explain that the task of the Committee is to SCARE and to UN-SCARE the world – precisely as it reads and interprets the available scientific data. We should explain that UNSCEAR is the United Nations Scientific Committee on the Effects of Atomic Radiation and that its reports are sometimes scary, sometimes reassuring – but always scientific.

When we discuss our own health care, we fully understand that without science-based diagnoses, the chances are poor of devising effective cures. It should be the same when we sense that Mother Earth suffers from both natural and man-caused ailments. To work out the proper cures we must ask for diagnoses based on science and professional experience.

We sometimes do. One – relatively young – example is the IPCC, the international scientific panel on climate change, which seeks to provide the relevant data on global warming and on measures that can counteract this warming. Another – older – is UNSCEAR.

In the field of radiation the world community had early the good sense to establish UNSCEAR to obtain straight scientific reports and advice. It has been richly rewarded. UNSCEAR has contributed to a continuously better reading and understanding of the global levels of ionising radiation and the impact of this radiation. As a result it has often been possible to take meaningful actions at the level of governments.

We have good reason to thank and congratulate the UNSCEAR Membership and the large numbers of scientists who provide support to the Committee. Their contributions have led to measures vital to the health of the global environment. Having noted this, we have also reason to urge the governments represented here to increase their support to UNSCEAR. The world continues to need the authoritative scientific advice of the Committee.

The best known example of UNSCEAR findings having a direct practical political impact was when they convinced governments of the necessity to stop further nuclear weapons testing in the atmosphere.

While this science-propelled measure of 1963 was rightly hailed as vitally needed to keep our environment healthy, I note that it was also the encouraging beginning of important global cooperation on arms control – in spite of the Cold War.

Paradoxically, in the present post Cold War world we would need similar encouragement in the field of global arms control. In a few days time, the report of the independent international Weapons of Mass Destruction Commission, which I have chaired, will be made public. It will suggest that no single measure would today give greater encouragement to global arms control than an acceptance by all states of the comprehensive test ban treaty that was adopted in 1996.

Now, let me turn to the CV of this healthy 50-year old.

UNSCEAR was born in 1955, in the middle of the cold war. Its ancestry was two senior international scientific bodies:

- ✓ the International Commission on Radiological Protection, or ICRP, and
- ✓ the International Commission on Radiological Units and Measurements, or ICRU.

These commissions had been created a quarter of a century earlier during the second Congress of Radiology in my home town Stockholm. However, both the ICRP and the ICRU were and are non-governmental academia, which do not act in the name of and on behalf of governments.

After witnessing the atomic horrors of Hiroshima and Nagasaki the world was experiencing a new atomic menace: the global radioactive contamination produced by the fallout from nuclear weapons testing in the atmosphere. The new situation needed an authoritative international analysis and scientific assessment of the global effects caused by the new nuisance. In a farsighted decision of the UN General Assembly UNSCEAR was established.

The GA resolution required that members of UNSCEAR should be scientists and UNSCEAR was filled with la crème de la crème of radiation science. To be sure, the members were expected also to represent their countries politically, but perhaps mainly due to their backgrounds they represented above all scientific knowledge. It is said that noblesse oblige. It can also be said that science oblige. In time the scientists, who became members of the Committee and its Secretariat, were to become the dominant voices in the radiation profession and to play significant roles in the ICRP activities.

Names that come to my mind are: Eizo Tajima from Japan, Dan Beninson from Argentina, Sir Edward Pochin from the UK and my countrymen Rudolf Sievert and Bo Lindell. Scientists like these set a standard of quality and moral integrity that has been the distinctive characteristic of UNSCEAR. They were able to set the Committee into operation promptly, efficiently and, above all, authoritatively.

When UNSCEAR was created, one hundred atmospheric weapons tests had already taken place. That number sky-rocketed – if the expression is allowed – until the Partial Test Ban Treaty, concluded in 1963, prohibited nuclear tests in the atmosphere, underwater and in space. More than 500 atmospheric tests took place prior to the ban. The total yield was more than 400 megatons of nuclear weapons or four orders of magnitude more than Hiroshima and Nagasaki combined – a really horrible situation – assessed and quantified by UNSCEAR in successive reports to the UN General Assembly.

The approach taken by UNSCEAR in assessing the human and environmental impact of nuclear testing was very novel. The individual radiation doses caused by nuclear testing were generally low except for individuals directly involved or near the testing site. It would have been impossible to illustrate the environmental damage of nuclear testing on the basis of individual radiation doses and their associated risks alone. UNSCEAR then introduced the concept of collective dose. This allowed a quantification of the overall collective detriment attributable to the testing.

Moreover, UNSCEAR extended the calculation of collective dose not only throughout the full population of the world at the time of testing. It also introduced the new concept of commitment of doses to future generations. This allowed the Committee to take account of the burden created by long-lived radioactive materials remaining in the environment. It might be seen as a step towards the now widely accepted – if not practiced – idea that our generation must be fully aware of what it leaves behind in the world and that it has a moral duty to ensure that it leaves the world in as good or better condition than that which existed when it took over the management – what you may term ‘sustainable exploitation’.

The approach taken by UNSCEAR enabled governments and the UN General Assembly to understand the real radiological burden to the world caused by the practice of nuclear testing. The public in the nuclear weapon states and their governments became convinced that something was wrong and that ultimately they would themselves become victims of what they were doing. This had a big impact and led finally to the readiness to abandon the practice of nuclear testing in the atmosphere.

UNSCEAR is a body of scientists with a broader mandate and broader interests than the consequences of atmospheric testing of nuclear weapons. The committee is scientifically interested in atomic radiation regardless of its cause. As a result, UNSCEAR has come to play a role that was not clearly foreseen at the time of its creation: By becoming the authoritative voice of the UN system in matters of radiation exposure, UNSCEAR turned out to be a key instrument in the process through which international radiation protection standards was developed.

The existence of such standards accepted by all is of vital practical importance. Indeed, it is a necessary precondition for the many safe uses of the atomic radiation. I am happy that as Director General of the IAEA, I had the good fortune, in the beginning of the 90s, to be involved in the creation of the now active UN Interagency Committee on Radiation Safety, which established the first UN Joint Secretariat with the task of developing international radiation protection standards – the so-called Basic Safety Standards.

These standards are specifically based on the UNSCEAR estimations of the risk of radiation exposure.

The sophisticated system, which eventually was established by States, of legally binding norms emanating from international safety standards, is essential for any future application of atomic radiation. The UN system in general and particularly its specialized agencies, notably ILO, WHO, FAO and IAEA, is indebted to UNSCEAR. Without the immense work of the Committee over the years, the necessary international harmonization on safety matters could not have been achieved.

In the future the world will undoubtedly expand its use of radiation, for instance to get better medical diagnoses and treatments, to improve agriculture, and to produce clean energy in nuclear power plants.

Governments and political parties sometimes appear to close their eyes to this reality or, at least to be reluctant to talk about it. One reason may be that they know many people are afraid of radiation and they want to avoid provoking negative reactions. Sometimes opinion leaders patronizingly declare that “we must take peoples’ anxiety seriously”... Well, yes, if we think the anxiety is rationally justified! If not it is, in my view, the duty of those who take it upon themselves to lead public opinion to explain why anxiety is not justified. They would do well to rely on UNSCEAR for scientific data and assessments on which they can develop and explain rational policies in which use is made of radiation.

UNSCEAR should also make itself and its work better known. I can understand that scientists are reluctant to engage in public debate but I suggest they have a duty to participate in the public discourse. They have the best data and analyses. It is essential that UNSCEAR’s conclusions be heard loud and clear.

UNSCEAR has a full agenda. Many problems linked to radiation exposure remain unsolved or are perceived by the public and politicians to be unsolved.

A common denominator of many of these problems is the issue of how we calculate theoretical numbers of deaths after exposure to low radiation doses. During the 20th anniversary of the Chernobyl accident, a few weeks ago, we could witness the confusion of governments, politicians, the media and surprisingly also responsible international organizations on the issue of how many deaths that could be linked to the accident. The numbers mentioned ranged between a few tens and several millions! Authoritative explanations would have been in place.

The issues associated with low radiation doses are not new and we have still not properly tackled the regulation of low radiation doses. The problem is complex and the positions taken are based on two different premises that seem contradictory to each other: Some believe that it is justified to calculate fatalities on the basis of estimates that assume health effects even of levels of radiation that are below ordinary background radiation and that are made for radiation protection purposes; others

believe that for the purpose of calculating fatalities it is improper to use estimates, which assume health effects from low doses and which are made for the purpose of precautions.

Perhaps some of the confusion that arose in the discussion of the Chernobyl case could be dispelled if UNSCEAR pronounced itself in clear and unambiguous terms on the issue.

This century will call for an UNSCEAR that remains independent, scientifically authoritative and increasingly ambitious to cope with growing challenges. Its current budget, which has been decreasing in real terms over recent years and amounts to some hundred thousands dollars, is not commensurate to its huge responsibilities.

UNSCEAR will need a well-staffed Secretariat and its resources will need to be strengthened so that its authority can remain based on rigorous investigation and radiation protection standards and rules can remain fully based on science.

The United Nations Environmental Program (UNEP), under whose wings UNSCEAR is placed, has a very great experience of the necessity to base political action on respectable science. We must look to it to ensure that the great capacity and potential of UNSCEAR is fully used for the benefit of humanity.

UNSCEAR has a great role to help move radiation from the world of mystique to the natural world and help it to become recognized as a normal and manageable part of our lives.

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