Remarks presented

by

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Chairman Zingu, Honorable Minister Mangena, other distinguished ministers and delegates, ladies and gentlemen:

This conference may be regarded as a formal culmination of events that were conceived by the European Physical Society some three years ago and later endorsed by UNESCO and the UN. Since then, many people have worked for the World Year of Physics---and many Physics Societies and Academies in many countries have been involved. A systematic collection of all the events is yet to be completed, and I am aware that some other events are yet to come.

For this conference, the various committees and individuals listed at the front of the program have invested a great deal of their time and effort, as have program committees and their chairs, and the participants and the speakers themselves. The Government of South Africa and other local institutions have been generous to host the conference.

It is thus difficult to single out a small number of names to thank. So I can only thank everyone involved in a generic fashion.

The rallying point for the World Year of Physics has been the three extraordinary of papers that Einstein published in 1905 on Brownian motion, photoelectric effect and relativity. While the celebrations have surrounded Einstein's work, their true purpose has been to raise the awareness that physics---of science in general---has much to contribute to the world at large.

Physicists have always shown concern for societal issues, such as global security and the threat of atomic weapons. For instance, among the signatories of the manifesto that inspired the Pugwash conference were some great physicists of the day (see slide). Those scientists were concerned about the havoc that can be wreaked on the human race by the use of nuclear weapons. This remains a threat even today, but a threat of another dimension has been upon us for some time now. This threat comes from unsustainable development, or the gradual depletion of the physical, natural and human resources of our planet, and

immense danger in which humanity is placed because of global changes, increasing energy demands and threats to public health, exacerbated by lack of access to basic education, deepening levels of poverty, population increase and concentration, increased tension and terrorism. Unlike the threat of nuclear weapons---which was stark and focused---the new threat is diffuse and is inching its way up in every part of the world. The growing interconnectedness of the world and the global relevance of this problem mean that no country can, on its own, either set the agenda on what needs to be done, or deal with it. It is clear that we need to develop global partnerships for sustainable development, especially with respect to contributions that science---and physics in particular---can make to this endeavor.

This conference is about developing such global partnerships. In particular, we have ahead of us a rich program dedicated to four vital topics concerning the interface between physics, on the one hand, and education, health, energy and environment, and economic development, on the other. The program is aimed to

generate discussions and to produce vigorous exchange of views on all these four fronts.

I now wish to make two additional remarks, first, on the action that needs to follow this conference, and, second, on the role of my own institution, namely ICTP, towards achieving global partnerships in physical sciences.

At the end of this conference, a resolution will be forthcoming. It is my hope that the resolution will transcend good intentions crafted in generic language, but contain specific plans of action, and the identification of resources needed and the institutions responsible. However, no matter how conscientiously the resolution is orchestrated, sustainable development is a long-standing issue, needing constant readjustment. As physicists, I believe that we should make a lasting institutional commitment to work towards sustainable development. Only by making this pact explicitly can we raise the effectiveness of physics and physicists and achieve the true goals of WYP2005.

In particular, there has to be a specific follow-up to the action plans to be endorsed by this conference. There has to

be a detailed "check-up" on the progress that has been made in fulfilling the provisions of the action plan, and a mechanism to devise updated strategies---or strategy "tune-ups"---for building the needed political support and funding. Much as I hesitate to say this, there is probably no better way to make this happen than by organizing follow-up meetings. I envisage them to consist of some 30 high-level scientists, science administrators who have prepared the action plans, as well as representatives of funding sources. I see these meetings as continuing in the same sense in which the Pugwash meetings, meetings of the Union of Concerned Scientists, and the Amaldi conferences on global security have lived on.

I will be happy for my institution, namely ICTP, to take on some of that responsibility. To drive home my point further, I should now say a bit about ICTP.

When I said earlier that we, the physicists, must make a pact with the world at large on sustainable development, I had in mind the scenario by which the constitutions of various physical societies and academies incorporate the notion and work on it as one of their priorities---just as they

have supported, recognized and rewarded scientific excellence hitherto. ICTP has embraced this ideal of excellence and global partnership since inception. I should immediately note that ICTP is administered by UNESCO under a tripartite agreement between UNESCO, IAEA and the Italian Government, which provides most of the Center's funding.

The chairman of this inaugural session, Professor Zingu, has occasionally written about ICTP's role in the development of science in developing countries, Africa in particular. Thousands of scientists from developing countries recognize ICTP as a 'home away from home'. It has been a centre of excellence in certain areas of theoretical sciences, and some 90 Nobel Laureates have lectured and taught here. Abdus Salam, the founding director of the Centre, was himself a Nobel Laureate. Each year, some 6000 scientists from 120 nations participate in the research and training activities at the Centre. These scientists are distributed equally between industrialized and developing countries.

ICTP's own research focus is on physics and mathematics but, increasingly, it is exploring how these fields can interface with sustainable development, for example, through studies of climate, earthquakes, medical physics, renewable energy, and so forth.

The Centre also plays a critical role in assisting scientists most in need, for example those in sub-Saharan Africa. It has helped to provide reliable internet access for scientists, helped create affiliated centres in mathematics and physics, financed the development of scientific networks in laser physics and the physics of climate, and acted as a bridge to research institutions in South Africa.

ICTP has also opened its doors to scientists from such war-torn countries as Iraq and developed avenues of cooperation with scientists from central and eastern European nations. In the 1960s, the Centre served as a critical bridge for scientists from the United States and the Soviet Union.

All this has been possible only because of the attention ICTP has paid to developing global partnerships long before it became a fashionable expression and a

requirement. Our experience is that the deep well of goodwill and altruism on the part of physicists---scientists in general---can be exploited under the right circumstances.

The ultimate goal of science is the betterment of humankind. This betterment assumes many forms. Some of them enable us to appreciate our place in the larger universe, open our minds to the large vista of accumulated knowledge and allows us to create new knowledge; some others have the practical consequence of enabling us to earn a living while engaging in useful activities. As human society has become increasingly dependent on science and technology, ironically, the skepticism about them seems to be growing. It has been argued that the problem is that scientists do not communicate well with the public. This may indeed be true but the deeper issue is the commitment that science ought to make towards the betterment of society. I hope that we can make this commitment and make the twenty-first century yet again a century of science---but one dedicated to reducing our anxieties while increasing our prosperity.