

Minister of science Dr. Danjanovic, Professor Milutitinovic and Ladies and Gentlemen,

I had hoped to be with you today; but unfortunately, circumstances beyond my control have prevented me from attending this conference. I want to take this opportunity to send my greetings and best wishes for a successful conference to all of you.

The organizers suggested that I prepare some remarks that would be presented to you. I was happy to do so, but I hope you will excuse me for straying away from the subject of this conference. I want to share my concerns about a matter that I considered to be of the utmost importance to humankind.

Human Society is at a perilous point. Science and technology have enabled us to prosper and multiply as a species. Our population is expected to cross the nine billion mark in the middle of this century, and industrialization is spreading across the world as developing nations strive to improve their standard of living. Human activities are transforming the surface of the earth, but in the process we are damaging the planet's ecosystems on which we vitally depend.

While science and technology will continue to be employed to better the human condition, their promise can only be fully realized if their applications are compatible with protecting the environment. No matter how much we try to improve our standard of living, we will all be negatively affected by a collapsing environment.

This will be the case for industrial nations and, to an even greater extent, for the developing nations.

One of the greatest challenges we face is creating a sustainable world. At present humankind is rapidly depleting its environmental bank. More and more we hear news of threats to our environment. We see agriculture and animal husbandry practices leading to soil impoverishment, loss of soil productivity and extensive land abandonment. We are now losing topsoil at a rate that is far greater than nature can restore it, and over a third of the planet's arable land was lost during the past century. Depletable ground water supplies are being exploited and contaminated. About one billion people lack access to clean drinking water and roughly 40 % of the world's population regularly experience serious water shortages. Tropical rainforests, as

well as tropical and temperate dry forests, are being rapidly destroyed, and as a consequence, large numbers of plant and animal species are being irreversibly lost. Fifty percent of our rainforests have already been destroyed. Marine fisheries are injured or collapsing from over exploitation, and coastal regions are suffering from pollution caused by soil erosion and industrial, municipal, agricultural and livestock wastes. The list goes on.

The dangerous consequences of this environmental damage are being intensified by the release of carbon dioxide from human activities into the atmosphere. This is creating global warming that is already being seen in catastrophic storms and floods, drought induced famines, the spread of tropical diseases and a number of other serious effects. If we are not able

to mitigate it, global warming is expected to have disastrous effects and events across the world in the latter half of the 21st century and beyond.

These problems are all symptomatic of a very serious crisis: Human activities are threatening the global biological and geophysical systems on which all life depends for air, food, energy and an acceptable environment. While much is known about how to combat some of these problems, more research and the development of new environmental friendly technologies are clearly needed. The developed nations must invest more in such science and in the development of relevant technologies and provide technical assistance to the developing nations. This is particularly true in the area of carbon-neutral energy production, since energy plays such an important role in the ecological future of our planet.

Science and technology have indispensable roles to play in reducing these problems, but only if governments take scientific facts into account in making policy. So to counter these threats, nations across the world have to develop the political will to make the right choices – to adequately support science, technology and education and to pursue environmentally friendly policies based on scientific information. We face the daunting task of gaining the agreement among the nations of the world to move forward against these global threats. Political leaders and the public have to be imbued with a deep consciousness that this is an absolutely urgent responsibility.

We have to find more effective ways to inform people across the world about the growing

dangers to the environment and how these dangers will likely affect them. The bare scientific facts are important to convey, but may not be sufficient to persuade political leaders and the public to make the policy and life style choices that are necessary to insure a sustainable world. We have to enlist all modes of communication to carry the message. It is remarkable what an impact Al Gore's film , An Inconvenient Truth, had in the United States. It was a significant factor in awakening a rather dormant environmental consciousness among much of the US public.

This points to the need for more educational campaigns of a broad scope directed toward protecting the environment. This is needed in both the developed and developing nations, but it is especially important in the developed nations

because they put enormous pressures on resources and on the global environment.

As developing nations strive to improve their standard of living, they too have to carry this message to their citizens. But the developed nations have to set an example in this, and they also should aid and support developing nations in their efforts to reduce pressures on the environment. To help developing nations in this way is not an act of altruism. Wealthy nations can abate but cannot escape the deleterious effects of a damaged environment. After all, we are all inhabitants of a very finite earth with limited resources. Sharing the air and the oceans, we will all suffer from growing pollution and climate change. This is an urgent global problem that requires a cooperative worldwide response. We

**all have a role to play in doing what we can to
ensure better future for humankind.**

Jerome I. Friedman, MIT

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