

Plenary Session: What Shall We Do Now? Jerome I. Friedman, MIT

This is the final session of the STS *forum* of 2009. Its theme is "What Shall We Do Now?" This is the crucial question -- because the environmental threats we face require urgent action.

Human Society is at a perilous point. Science and technology have enabled us to 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. We are rapidly exceeding the resources of our planet. And human activities are transforming the surface of the earth in ways that are severely damaging the planet's ecosystems on which we vitally depend.

In the STS *forum*, we have heard numerous reports of threats to our environment. It is clear that humankind has immense challenges in addressing the many serious ecological problems that afflict our planet.

The continuing increase of carbon dioxide in the atmosphere is creating global warming that is already having a destructive impact on populations across the world and is threatening to wreak havoc in this century and beyond.

Clean water supplies are being over exploited and contaminated throughout the world and are being further diminished by global warming.

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.

Agriculture and animal husbandry practices are leading to soil impoverishment and extensive land abandonment.

Marine fisheries are injured or collapsing from over-exploitation, and coastal regions are suffering from pollution caused by soil erosion and by industrial, municipal, agricultural and livestock wastes. The growing acidification of the oceans is further threatening marine ecosystems. The list goes on.

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, water and an acceptable environment. While much is known about how to combat a number of these problems, we clearly need a greater investment in scientific research and in the development of new, innovative technologies to counter these threats.

As has been discussed in this forum, science and technology have indispensable roles to play in addressing these problems; but they cannot, in themselves, provide a magic bullet. To counter these threats, nations across the world also have to develop the political will to make the right choices. We face the daunting task of gaining agreement among the nations of the world to seriously move forward against these global threats. Progress in this area has been limited by the view that many of the proposed measures to protect the environment would be detrimental to economic development.

The upcoming United Nations Climate Change Conference that will be held in Copenhagen will try to address this issue. While its goal is to obtain a binding agreement between as many nations as possible to reduce human - made greenhouse gases -- its stated objective is to obtain an agreement that "combines respect for the environment, living standards and the long-term security of the energy supply in the best possible way". Japan should be congratulated for setting the goal of a 25% reduction in carbon dioxide emissions by the year 2020. On the other hand, opponents of decisive action should understand that no matter how much nations try to improve their standard of living, they all will suffer the disastrous consequences of a collapsing environment --- both the industrial nations and, to even a greater extent, the developing nations.

Political leaders across the world have to be imbued with a sense of urgency to do what is necessary to help reduce these ecological threats. The United Nations Climate Change Conference will be a crucial test of the international resolve to counter global warming and avert the resulting human catastrophe. I think all of us here at the STS Forum should do what we can to urge our respective political leaders to work toward achieving this goal. We must find a path to re-establish harmony with nature.

I want to thank the speakers of this session for very illuminating presentations. I also want to thank all of our speakers and participants in this forum for very insightful and lively discussions over the past few days. We hope that when all of you return home you will continue these discussions in other venues and formulate plans of action to address the serious problems we have discussed. These problems are urgent and there is no time to spare. I should also add that I hope you will continue these discussions at a future STS Forum.

Before I close this session, I want to thank Mr. Omi on behalf of all of us for his visionary leadership in founding the STS *forum* and for his untiring efforts to make it a success. Thank you all again. This Forum is now closed.