

1. OPENING SESSION

**THE INTERNATIONAL SEMINARS ON PLANETARY EMERGENCIES
AND ASSOCIATED MEETINGS 36th SESSION**

ANTONINO ZICHICHI
CERN, Geneva, Switzerland and
University of Bologna, Italy

I welcome you all to this 36th Session of the International Seminars on Nuclear War and Planetary Emergencies and declare the Session to be open.

Here we are again, one hundred scientists from 26 countries and 77 institutions, gathered in Erice to analyse a series of crucial multidisciplinary scientific issues. But first of all, let me remind you of the reason for which we have been meeting in Erice every August for the last 25 years, and that is to ensure the contribution of the scientific community to the fight to overcome the 63 Planetary Emergencies, subdivided into 15 classes, as determined by the World Federation of Scientists 33 years ago, summarized as follows:

	SUMMARY	Number of P.E.
I	<i>Water</i>	=4
II	<i>Soil</i>	=3
III	<i>Food</i>	=5
IV	<i>Energy</i>	=5
V	<i>Pollution</i>	=6
VI	<i>Limits of Development</i>	=3
VII	<i>Climatic Changes</i>	=1
VIII	<i>Global Monitoring of the Planet</i>	=6
IX	<i>New Military Threats in the Multipolar World</i>	=3
X	<i>Science and Technology for Developing Countries to Avoid a North-South Environmental Holocaust</i>	=1
XI	<i>The Problem of Organ Substitution</i>	=5
XII	<i>Infectious Diseases</i>	=7
XIII	<i>Cultural Pollution</i>	=7
XIV	<i>Common Defence Against Cosmic Objects</i>	=2
XV	<i>The Huge Military Investments</i>	=5
	Total	=63

The main topics of this Session are:

On Sunday 20 August: **The Global Energy Crisis**—co-chaired by Richard Garwin.

In view of its impact on the progress and well-being of both Industrialised and Developing Countries, this Emergency has been one of our most important concerns.

Last year, we reviewed the Nuclear and Renewable Energies aspect, and came to the conclusion that we needed to investigate in more detail the nuclear energy production schemes.

This year, we have programmed a full day session, chaired by Professor Richard Garwin of the Thomas J. Watson Research Center. Jacques Bouchard of the French Atomic Energy Commission and Steve Fetter of the School of Public Policy, University of Maryland will give us *Two Views on the Global Nuclear Energy Power Future*.

Jacques Bouchard, Kazuaki Matsui of the Institute of Applied Energy of Tokyo and Phillip Finck of the Argonne National Laboratory will then analyse the *Generation IV Concepts*.

Comments on *PUREX and MOX Burning* will be provided by Jacques Bouchard, Kazuaki Matsui and Richard Garwin, while Philipp Finck will talk on *Global Nuclear Energy Partnership*

Finally, Charles McCombie of the Arius Association of Baden, Switzerland will report on the delicate question of *Repositories around the World*, Steve Fetter on the *Resources for the Long Term* and Carmen Difiglio of the U.S. Department of Energy will speak of *Coal with Sequestration, the Principal Competitor*.

On Monday 21 August, three important topics:

1. **Nuclear Proliferation**—co-chaired by Richard Wilson of Harvard University:

Ramamurti Rajaraman of the School of Physical Sciences, Jawaharlal Nehru University will speak on *The Implications of the Indo-US Nuclear Agreement for S. Asia and the World*;

Followed by **Alexander Kononov** of the Moscow State Institute of International Relations on *The Problem of Nuclear Proliferation in a New Security Environment*, and **Kazuaki Matsui** of the Tokyo Institute of Applied Energy on *Proliferation and the Nuclear Fuel Cycle Issues in Japan*;

Joachim Krause of the Christian-Albrechts-University of Kiel will pose the question *How Serious is the Crisis of the International Nuclear Non-Proliferation Regime?*

Christian Bühlmann of the R&D services of the Military Federal Department of Switzerland will explain a people's rational behaviour in *Rogue State Helvetia? Switzerland and the Atomic Bomb 1945-1988*;

Ahmad Kamal will speak on *The Demise of the Nuclear Non-Proliferation Treaty*, followed by Roland Timerbaev of the Center for Policy Studies in Russia on *Nuclear Proliferation: Current State and Prospects*. **Richard Garwin** will conclude by providing his views and comments on the problem.
2. **Avian Flu Update and Global Health**

Albert Osterhaus of the Erasmus Medical Center in Rotterdam will provide us with the latest findings on the battle waged by the international community of scientists against Avian Flu;

Ahmad Kamal will give us an authoritative report on the need to bring a Change in Global Health.
3. **Global Warming** – co-chaired by William Sprigg

Global Warming is a recurring topic in our Seminars. We identified early on that it was crucially important to ensure that the models being used to evaluate Global Warming trends are scientifically accurate. This year, we are looking at the evaluation of aerosols and their impact on climate change.

Lawrence Friedl of the NASA Applied Sciences Program will speak on *Air Quality Forecasting and International Policy*. **Sundar Christopher** on *Satellite Remote*

Sensing of Aerosol Climate Effects. **Graeme Stephens** of Colorado State University on *Connections between Aerosol, Atmospheric Radiation and Hydrological Processes.* **Gregory Carmichael** of the University of Iowa on *How Good are our Global and Regional Models?* Finally, **Christopher Essex** of University of Western Ontario will tell us how he rates *Fundamental Science in Climate Forecasting with Models.*

On Tuesday 22 August, again three main topics:

1. **Water Pollution**—Co-chaired by L. Everett and F. vom Saal
This year, Water Pollution is focused on Plastic Contaminants in Water.
We'll hear testimonies from **Charles Moore** of the Algalita Marine Research Foundation on *Global Ocean Contamination*, **Shanna H. Swan** of the Rochester Center for Reproductive Epidemiology on *Health Effects Of Plastic Additives on Humans*, Frederick vom Saal of the University of Missouri on *Consequences for Animals*, and **Jean-François Debroux** of the San Francisco Kennedy/Jenks Consultants on *the Problem of Remediation.*
2. **Information Security**—co-chaired by Henning Wegener
Information Security is fast turning out to be a major concern worldwide. This year, we focus on the *Relevance of Cyber Insecurity.*
After an introduction by Henning Wegener, **Pradeep Khosla** of the Carnegie Institute of Technology will speak on the *Challenge Presented by New Digital Networks*, **Udo Helmbrecht** of the Bonn Federal Office for the Security of Information Technologies about the *Economic Dimension of Cyber Insecurity*, **William Barletta** of Lawrence Berkeley National Laboratory on the *Evolving Face of Cyber Conflict* and, finally, **Jody Westby** of Global Cyber Risk, Washington, on *Bridging the Legal Divide in Information Security.*
3. **Defence against Cosmic Objects**—co-chaired by Walter Huebner
After an overview of the recent research activities by Walter Huebner, we will hear **John Zinn** of Los Alamos National Laboratory speak on the *Two Fireballs over New Mexico and their Modeling*, **Michael Belton** of the Belton Space Exploration Initiatives in Tucson on the *Scientific Results of the Deep Impact Mission* and **Hajime Yano** of the University for Advanced Studies in Japan on the *Hayabusa Mission to the Itokawa Asteroid.*

On Wednesday 23 August, **Cultural Emergency and PMP Reports**

We will first hear **Ahmad Kamal** present a global report of the Cultural Emergency focused on Terrorism, and then the yearly reports from various PMPs before concluding.

And now I shall give the floor to our co-chairman, **Professor T.D. Lee**, who will report on how the WFS had a major impact on defeating a manifestation of Cultural Emergency in the People's Republic of China.