

**Speech as Chair of the Plenary Session “Sustainability and the Economy  
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**Hiroshi Komiyama  
President  
University of Tokyo, Japan**

Distinguished guests, ladies and gentlemen, I am Hiroshi Komiyama, President of the University of Tokyo. It is a great honour for me to act as Chairman of this session. In this session, we will be discussing how we can maintain our own economic activities while preserving the environment for our children and grandchildren.

To start with, I would like to present to you specific discussion points for this session:

- 1 How can we pursue the dual goals of achieving global sustainability while ensuring fast economic growth and prosperity to wider areas and more countries?
- 2 How can science and technology progress contribute to achieving these dual objectives in a tangible way?
- 3 What good news to this effect can we expect for the foreseeable future?

Let me first share my ideas on the first discussion point. In 1987, the World Commission on Environment and Development (WCED), chaired by Gro Harlem Brundtland, published a report entitled “Our common future”. The document known as the “Brundtland Report” developed guiding principles for sustainable development as it is generally understood today.

In the report, sustainable development was defined as follows: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

The first discussion point of this session is inline with the issue raised by the Brundtland Report almost 20 years ago. I hope we will be able to shed light on this issue from new perspectives.

At the University of Tokyo, we established a research consortium called the “Integrated Research System for Sustainability Science”, or IR3S. Our research examines three kinds of systems: global, social and human. All three systems, and the linkages among them, are crucial to the coexistence of human beings and the environment. In other words, the current global sustainability crisis has much to do with the breakdown of the three systems and their linkages. For example, global warming is a problem that stems from distortion of the interaction between the global and social systems.

IR3S sees as its ultimate objective the development of visions and policies for repairing and rebuilding the global, social and human systems and the linkages among them.

The second discussion point for this session is how science and technology progress can contribute to achieving these duals objective in a tangible way.

Now, let us consider what the academia can do to promote the sustainability of human beings. In order for us to be able to attack complex problems like global sustainability, I have been advocating an initiative called “Structuring of Knowledge.”

Human activities expanded explosively during the 20<sup>th</sup> century. However, there is something which exploded more drastically: knowledge. Indeed, the explosion of knowledge far outpaced the increase of the capacity of an individual human being. This caused not only the subdivision but also what I call the “compartmentalization” of academic pursuits.

Today’s serious problems in such areas as environment, energy, aging and poverty are all extremely complicated, but because many researchers tend to entrench themselves deeply within the realm of their own expertise—the “compartment”—we are now in a deadly situation where no one is able to grasp the entire picture.

In order to make use of the progress in science and technology to achieve the proposed dual objectives in a tangible way, knowledge must be structured; outputs from the subdivided fields must be linked and combined to generate useful results for human beings.

The third point is what good news to this effect we can expect for the foreseeable future.

For this point, I would like to touch on our efforts for increasing energy efficiency. All energy-saving technologies should aim to bring the actual energy consumption for a given application as close to its theoretical minimum as possible.

For example, nearly all air conditioners of the highest energy efficiency are produced in Japan. Even these used to consume ten times more than the theoretical minimum until recently. Between 2000 and 2003, however, energy efficiency improved by 1.5 times through technological improvement. If this trend continues, it should be possible to improve energy efficiency by four to five times by 2050.

Automobiles are as significant as residences in terms of a potential for reducing energy consumption; the use of the hybrid system has doubled the efficiency. A combination of the use of the hybrid system and improvements in weight reduction and other technologies is considered to have a potential of achieving a total of fourfold increase in efficiency.

I am glad that these efforts have already started giving us significant good news. For example, the total gasoline sales in Japan in 2005 decreased from the previous year for the first time since 1984, despite the positive economic growth. The structure of the Japanese economy has already shifted to that of energy efficiency.

Instead of me further commenting on these points, let us now hear from the speakers. Thank you.