Congratulatory Speech in the Graduation Ceremony of UNU/IAS

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President, Science Council of Japan
President, Toyohashi University of Technology
Professor Takashi Onishi

All the Graduates, Class of 2015, United Nations University Institute for the Advanced Study of Sustainability
Dr. David Malone, Rector、UNU
Professor Kazuhiko Takeuchi, Senior Vice-Rector, UNU
Dr. Kazu Takemoto, Director, UNU/IAS
Distinguished Guests, Ladies and Gentlemen

Thank you for the opportunity to speak in this special occasion to celebrate the graduation of Class 2015, United Nations University Institute for the Advanced Study of Sustainability.
I am Takashi ONISHI, President, Science Council of Japan, and President, Toyohashi University of Technology. I also served as Adjunct Professor, the former Institute of Advanced Studies, UNU, since it was located here just behind this main building. And I am currently serving as visiting Professor for IAS. Therefore, I have been watching the development of UNU and its institutes for a long time, and I am very happy to see its degree programs in master's and doctoral levels established and many excellent students graduate from them.
When I had an office here in the former IAS, I shared it with late Professor Hirofumi Uzawa, famous economist, and enjoyed talking with him. Since UNU is located between my two offices of the University of Tokyo, Komaba and Hongo, at that moment, I was often searched because I disappeared on the way to spend some time at UNU. In fact, the location of UNU is the best among universities in Japan, on Aoyama Dori, with a lot of good restaurants and attractive shops as you may know.

1. Universities

Taking this opportunity, I would like to talk with you a little bit about universities, because big challenges are facing them in the world and in Japan.
Some of these challenges will perhaps be familiar to universities around the world including UNU, but some others are specific to universities in Japan.

1-1 Common problems facing universities around the world

One of the common issues is the increase in demand for university education. UNESCO estimates that more than 200 million students are currently enrolled at higher education institutes worldwide, and the numbers are increasing rapidly. At the same time, UNESCO also states that the number of students studying abroad has doubled over the last 12 years, to around 4.5 million and will be 8 million in 2025. So the trend of increasing numbers of young people seeking higher education, even beyond national boundaries, is clear to see.

This growing popularization and globalization of higher education demands that universities can provide at least two key things, which are standardization and uniqueness. The standardization of technical terms, curriculum and even teaching language is desirable for students to be able to study whatever, wherever and whenever they want. At the same time, however, each university must demonstrate its unique character in terms of its teaching methods, research style or job opportunities, so as to distinguish itself from the others. From these points of view, UNU IAS is obviously one of the best universities in the world, because it is shaped as an international entity with education language, subjects fitting the new era, students with various nationalities with the different first degrees. UNU IAS really forms interdisciplinary and global scientific research arena.

1-2 Peculiar problems in Japanese universities

Then, I would like to consider the serious challenges facing universities in Japan particularly, because I am heavily involved in them as president of one of the national universities in this country.

First of all, the decline in the population of Japan is creating a downwards pressure on the number of university students. Today, there are 1.2 million 18 year olds in Japan, but this number is expected to be halved by 2060. Therefore, it is extremely difficult to maintain the existing number of universities of all types.

Secondly, the huge fiscal deficit that the Government of Japan is grappling with means that there is an ongoing tendency to reduce funding, whether the operating expense grant for national universities or subsidies for private universities. This trend is accelerating due to the rapid increase in government expenditure allocated to care for the elderly, such as health care or pension expenditure, which is in turn being exacerbated by Japan's ageing society

1-3 Strategies to tackle population decline

What should we do to tackle these serious and continuous problems? Of course, they cannot be solved so simply. The population and fiscal problems facing us are the fruit of some long term underlying trends which are deeply rooted in Japanese society.

As for how to counteract the declining university population, there are various strategies.

Only 51% of each year's population go on to university level in this country, which is much lower than the 62% average of OECD countries. Similarly, the proportion of mature students entering the student body after the age of 25 is only 2% in Japan, significantly lower than the 21% average amongst OECD countries. Finally the number of foreign students studying in Japanese universities has remained in recent years at 140 thousands behind USA, UK, Australia, France, China and Germany.

To conclude, Japanese universities may still prosper if they can maximize the potential intake of a cohort, mature students and foreign students.

1-4 Strategies to tackle fiscal problems

What about the fiscal problem? This is a particular challenge for national universities which are basically

supported by the national budget, through university operation expense grants. In response, Japanese universities need to adopt a two-pronged strategy.
Firstly, universities should reduce in size to reflect the reduction of the young population. However successful they are in recruiting a higher proportion of high school students, it may not be feasible to maintain the existing capacity of universities when one considers the projected halving of the 18 year old population in Japan by 2060.

Secondly, universities should strive to state the case for them to receive continued support, in discussion of budget priorities. Therefore, it is crucially important to raise awareness as much as possible about the indispensable value of universities to society. This is particularly true in a society like Japan where, lacking abundant natural resources, we depend more on science and technology to develop our society.

2. The direction universities should take

2-1 Industry-University Collaboration

Let me talk about the role of universities in the society as a center of scientific research. I am a member of the Japanese Government's Council for Science, Technology and Innovation, or CSTI for short. CSTI is chaired by the Prime Minister of Japan and consists of Cabinet Ministers, scientists and experts, some of whom are drawn from the industrial sector. CSTI acts as the headquarters for science and technology policy of this country. It was only a few years ago that the 'I for innovation' was added to the original name of the Council for Science and Technology Policies, or CSTP. By formally adding "innovation" to the new name for CSTI, the Government of Japan tried to widen its remit to include not only science and technology in themselves, but also in terms of their application and practical use.
I believe that this innovation oriented policy is not peculiar to Japan, and that many governments in the world are now trying to develop their economy and industries through the promotion of science and technology. This strategic shift has a strong effects on universities.

Scientific research activities conducted in universities are expected to be more connected to economic and industrial activities outside them. Industry-university collaboration is already a well-worn term, but there is still room for improvement in this respect. For instance, research funds provided by universities and industry can be merged to create more joint research projects. Some researchers themselves could be jointly hired by universities and industries. Even doctoral students could be employed by industries to continue to work in the company securely after completing their university program. Put simply, above and beyond their role of providing skilled human resources to society, universities should make themselves more accessible to society as centers of research.

On top of this, the collaboration between universities and the public is also important. Of course, this will cover the collaboration between universities and international organizations. I believe that some of you may have jobs there. Obviously, the role of international organizations are crucial to unite all the people in the

world and to solve the problems arising from differences of religions, political or governing systems, economic development or more simply just from differences of income among countries in the world. As the graduates from an international university, you must have the highest awareness to them, and must be most capable of working for solving these global problems.

2-2 Future Earth

If I may, I would like to offer two examples in which the world expect the UNU IAS graduates. As president of Science Council of Japan, I am promoting a scientific research program called “Future Earth”, which was originally proposed by the International Council for Science and some UN organizations including UNU. The Future Earth program, in order to raise awareness about the crisis of irreversible deterioration of the global environment, requires scientific research in the observation of a wide range of earth environments or in the relationship between human activities and the global environment. It is similar to the scientific research required to realize sustainable development. However, Future Earth sets a high value on using the findings from scientific observation of the earth to suggest what changes society can implement to avert the coming crisis. Of course, history teaches us that there is a limit to how much society will heed the warnings of science. Therefore, Future Earth requires an inter-disciplinary approach in which various scholarly disciplines should work together. But at the same time, Future Earth also emphasizes the need for a trans-disciplinary approach, whereby various groups in society should work together based on a common understanding of the crisis. This trans-disciplinary approach suggests new paths for developing existing scientific disciplines. What is necessary to make people change their way of life, and what new engineering will be required to produce the things people need without wasting precious materials and energy? These questions can be answered through trans-disciplinary collaboration and challenge by researchers to find solutions for them.

Through giving a start to the new program of Future Earth, we understand the attitude of universities to positively exchange a pile of knowledge they have with the society to seek new themes of research or to apply the knowledge to the society.

2-3 Disaster Risk Reduction

Secondly, I would like to mention that scientific research on disaster risk reduction have possibility to save human lives and man-made properties. This year, we had the 3rd UN World Conference on Disaster Risk Reduction in Sendai, where the Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted. There are still a lot of vulnerable areas to natural disasters in the world or particularly in Asia. Therefore, this UN conferences were held in Japan three times since 1994. Early warning system, Automatic Stop System in Earthquakes for Bullet Trains, effective construction of sea-walls and breakwaters to weaken the damage caused by tsunami, and precise and detailed weather forecasting using satellites and various numerical simulation models, those are scientific contributions to disaster risk reduction. Our experiences in 2011, however, showed that not only technological sciences but also humanities, social sciences and life sciences are important in efforts to reduce the damage caused by disasters, to provide life-saving, emergency medical care, to make evacuation more effective, and to improve life in temporary housing. Therefore, all sorts of

scientific research are necessary for disaster risk reduction to enhance the resilience of local societies.

3 Conclusion

As you may know, what you studied here is very much related to the problems the global society needs to solve. I hope you will contribute to tackling these critical global problems, applying the valuable skills and experiences you gained here.

Congratulations once again. And thank you for your attention.