

Prospects for the future – projections, scenarios and new and emerging issues: Role of science and technology

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Thank you, Madam Moderator, Excellencies, Ladies and Gentlemen, my name is Fumiko Kasuga and it is my great honor and pleasure to have such an opportunity to talk in this session. I would like to discuss on the roles of science and technology for achieving the Sustainable Development Goals.

This is how we suffered from air pollution about 50 years ago. Yokkaichi is one of heavy industrial cities located in the middle of Japan and Yokkaichi Asthma was well known at that time. Then, please look at the right picture. Citizens, industries, academia and government have been working together very hard to bring back this clear sky. It shows that we can appreciate clean air even with good economic development.

However, I would like to emphasize that a developing country does not need to go through the same paths, starting from the struggle we have had in the past. They have a great opportunity to directly jump to this stage, Smart Society, with an innovative manner, and can even export such methods to developed countries, just if we can transform our life style with low energy demand, and by making good use of renewable energy and ITC.

Now, what we should consider to make this happen?

I think we can simplify policy making processes for Sustainable Development Goals like this: starting from issue identification and preliminary decision making, followed by assessment and then selection of possible options, implementation of policy actions and monitoring and review.

For rational, understandable and efficient policy measures for innovative actions, stakeholder engagement from the very first stage is always encouraged.

I would emphasize that, in particular, science should be the basis

for every stage of this cycle in a systematic way, domestically and internationally, and in order to be so, scientists should also recognize their responsibilities and are ready to contribute in inclusive, transparent and neutral manner. National and global academic communities and platforms, such as ICSU, IAP, STI forum, and Future Earth are willing to contribute.

Let's think about an example from Goal 3, Health and Wellbeing for all.

There is a target, "By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination".

There are many unclear points, such as:

Which chemicals, Which country or region, What kind of illnesses should be prioritized,

Whether current illnesses are well monitored,

How and to which degree we should set as Target reduction,

How to monitor transition, achievement, or failure of the target,

And how to address to different future scenarios based on changes in environment, economy and society, and in affected population.

To clarify them, we need scientific inputs for understanding, communicating and making decision.

In order to provide integrated knowledge for global sustainability, Future Earth was launched to address complicated issues and policy questions and to integrate science beyond disciplines, especially across natural and social sciences. In addition, collaborating with stakeholders in the society from the initial stage of research planning through delivery of the research products is also a critical element for Future Earth. We will create partnership between research and policy to provide knowledge to GSDR and other UN processes in a timely manner.

Future Earth was established and is governed by international organizations such as ICSU, ISSC, SDSN and STS forum, and UNESCO and several other UN organizations.

Network of more than 50,000 researchers throughout the world including Future Earth Core Projects provides integrated research on topics which underpin the SDGs.

As actual vehicles for interaction, Future Earth is developing Knowledge-Action Networks, based on these basic themes.

For Health, we will address how we can achieve health with good QOL for human, together with environmental health, Planetary health. For Sustainable Consumption and Production and Transformation, we will seek for possible options to achieve both reduction of stress to the environment and sustainable profits for the society.

And for Sustainable Development Goals, we will deliver scientific evidence on, for example, who are most left behind, rational and scalable monitoring and indicator sets for targets, models and data to explore trade-offs, synergies and cross scale linkages, and opportunities for transformative pathways.

Global Sustainable Development Report, 2016, Chapter 5 well summarized scientists' visions on emerging technologies crucial for the SDGs. We would like to thank all the contributors to the report.

At the same time, the report indicated several emerging concerns. In addition to unstable political situations, serious natural disasters and negative impacts of new technologies on the environment, we have to be reminded that any kind of science and technology has a potential to be mal-used with destructive intention, so called 'dual-use'.

There may not be perfect measure to prevent these issues. However, every effort on developing monitoring systems for early detection, awareness raising, ethical education, rule setting and developing technology for protection should be accumulated and integrated. Again, there are many roles of science and technology for those efforts for security.

I agree with all the expected new technologies suggested in GSDR 2016, but would like to specifically point out the need for innovation in ICTs, in order to reach most vulnerable people and to engage them in the dialog and to overcome miscommunication and misunderstanding among different sectors also by different languages.

Considering the importance of the outputs of GSDR, I wish that a dedicated session on emerging issues will be included at every HLPF session.

In addition, we should encourage People-Centered Approach, or Human Security, so that every individual in the world can receive education and necessary nutrition and have dignity for their further empowerment, in order to leave no one behind.

Future Earth and ICSU, together with other scientific and technological communities in the world, are willing to contribute to the processes of the High Level Political Forum.

Thank you for your attention.