Summary of STI Forum side event

Event Title: Future Urban Design to promote achievement of the SDGs through STI
Date: 5th of May 2021 (Wed) 19:00-21:00 EDT
Organized by: Engineering Academy of Japan
Co-organized by: United Nations University, Permanent Mission of Japan to the United Nations
Supported by: United Nations Industrial Development Organization (UNIDO), Tokyo Investment and Technology Transfer Promotion Office
Place: Online (Hosted by Prof. Taro Arikawa, Chuo University)
Participants: 70 at maximum including speakers.

Aims and Objectives: The challenge facing the Pandemic is to compromise the trade-offs among freedom, sufficiency, and security through STI and realize a city that can serve as the platform of prosper lives, and we hope that this session will help to achieve this goal.

Contents:
1. Introduction and "Outbreak Risk Management and Future City" by Prof. Taikan Oki (United Nations University)
2. "Fragmented infrastructure systems in Ulaanbaatar, Mongolia: Assessment from a Resource Nexus and public health perspective" by Prof. Dr. Daniel Karthe (United Nations University)
3. "Design from Crisis" (20 min.) by Prof. Mikiko Ishikawa (RDI, Chuo University):
4. "Japanese smart city projects in Russia" by Ms. Guzel Ishkineeva (Tsukuba University)
5. "Human security and well-being for urban design with STI" by Prof. Yoshikazu Nakajima (Tokyo Medical and Dental University)
6. Discussions, Questions and Answers (moderator: Prof. Oki)

At the beginning of the event, Prof. Taikan Oki, the Senior Vice-Rector of the United Nations University, introduced the organizer of the event, the Science, Technology, and Innovation in 2050 (STI2050) committee under the Engineering Academy of Japan, mentored by Dr. Michiharu Nakamura, a member of the 10-member group of ECOSOC, and their mission to draw a roadmap for "science, technology, and innovation" to realize the necessary technologies and the future vision to be achieved in 2050, based on an understanding of the current situation, including an inventory of technologies for 2050. Then he shared the agenda and the target of the event to identify some or several key concepts and/or key technologies we should be aware of when we envision future urban design, in the face of global issues, such as the COVID-19 pandemic and climate change.

At the end of his talk, he briefly mentioned about his new idea to develop a new discipline on outbreak risk management through identifying the commonality among various outbreaks, such as pandemics, floods, traffic jams, and communication failures, and exchange ideas how to compromise the dilemma between redundancy and efficiency of preparedness to manage the risks.

Four speakers shared their perspectives afterwards.

Prof. Dr. Daniel Karthe: In Ulaanbaatar, Mongolia, rapid urban growth has led to a fragmented infrastructural development. A combination of poor water and energy supply in peri-urban ger areas (where people live in traditional Mongolian felt tents and simple houses) and worsening traffic congestion particularly in central parts of the city have led to a deterioration of environmental quality (air, water and soil contamination as well as pollutant accumulation in the biosphere). The totality of this environmental pollution and its negative effects on physical and mental health should be considered when planning future infrastructural developments.

Prof. Mikiko Ishikawa: Green Infrastructure had been created when human beings had faced to crisis. Green infrastructure is social overhead capital, which is created by strategic planning for the sustainability of earth environment, based on protecting natural environment, enriching biodiversity, and respecting cultural landscapes. Therefore, green infrastructure can contribute to provide safe environment from natural disasters, by applying climate mitigation and adaptation policies, and improve quality of life of citizens.

Ms. Guzel Ishkineeva: Japanese smart city initiatives were outlined in the presentation. Referring to the background of Russian Japanese relations and the Eight Point Cooperation Plan proposed by former Prime Minister Abe Shinzo in 2016, the implementation of smart city projects in two Russian cities was discussed. In particular, the efficiency of the implementation of smart traffic light system ARTEMIS in Voronezh and Vladivostok, the needs of Russian cities and urban infrastructure, the problems faced by contemporary Russian cities and Japanese smart city solutions feasibility were presented.

Prof. Yoshikazu Nakajima: Multi-AI system would minimize the infection risk by ensuring human comfort and a decent living standard. The system includes technologies to a) detect the individual coordinates of smartphones, b) estimate one's physical and mental condition from vital data and c) estimate comfort levels from everyday facial expressions using IoT technologies. Although there are many challenges in developing this multimodal AI, the key to realizing the future urban system lies in the development of a multimodal AI that interlinks a wide variety of input data in urban areas.

At the end, these messages and ideas were shared:
- Green infrastructure is sometimes considered as a new concept; however, it has a long history of town & country planning for thousands of years.
- Green infrastructure aims to achieve sustainable regions and communities towards climate change and pandemic.
- There are many purposes and motivations for introducing smart cities, but ultimate goal would be to improve well-beings through reducing environmental burdens, such as energy consumption and waste, and improving the freedom of people from pain, such as traffic jams, air pollution, and involuntary labor, by the latest information and communication technologies.
- A technical solution should be appropriate for specific settings. In developing states, high-tech solutions have the potential to reduce costs and increase efficiency, but might also exceed local capacities to operate, maintain and dispose them properly.
- Technical and infrastructural advances and socio-economic development can be mutually enforcing, initiating and sustaining a positive cycle of regional development.
- Envisioning future urban design should consider how future cities will leave no one behind and support developing sustainability in society.