Day 4：10 November 2017 (Friday) ,
9:30 - 11:00, “Rebuilding Broken Societies through Reconstruction and Recovery”

Science, Technology and Education for Rebuilding Broken Societies - from Japan’s Perspective -

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Day 4, 9:30 – 11, Friday 10 Nov 2017,
Plenary session:

"Rebuilding broken societies through reconstruction and recovery"

Venue: King Hussein Bin Talal Convention Centre, Philadelphia - Ground Floor

Abstract: Rebuilding broken societies where natural or manmade catastrophes have prevailed is imperative to effect recovery and achieve stability, and to bring peace and socio-economic development to an affected region.
Post-conflict countries face particular development and security challenges as they move toward economic recovery. These countries are often characterized by insecurity and lawlessness, poor or corrupt economies, and a lack of social services and cohesion. Building enduring peace in war-torn areas is a formidable challenge which requires an understanding of managing the sometimes conflicting tensions between short-term recovery and long-term reconstruction and development.

This plenary session will explore how science can help to rebuild broken societies, with a focus on post-conflict countries. Intuitively, science can bring knowledge and rigor to understanding immediate and longer-term needs, informing roadmaps and long-term investment plans for building prosperity and improving the lives of affected people. Some post-conflict nations, such as Rwanda and Vietnam, have put this into practice and are now benefiting from the pursuit of science-for-development strategies. This session will explore lessons learned and whether there are transferrable practices that can be institutionalized and replicated in other post-conflict nations or those in transition. It will explore whether developing robust science infrastructure should be an integral part of reconstruction and recovery.

Speakers:

***Mihail Dimovski, Executive Director, Regional Environmental Center**

***Abdallah Al Dardari, Senior Adviser on Reconstruction, Office of the Vice President, Middle East and North Africa Region (MENA), World Bank**

***Mohamed Ali Al Hakim, Executive Secretary, ESCWA**

***Tateo Arimoto, Professor, National Graduate Institute for Policy Studies (GRIPS) and Principal Fellow, Japan Science and Technology Agency (JST)**

Moderators:

***Ayman Mohyeldin, MSNBC Anchor, NBC Group**

Science & Technology and Education in the 21st century

- STE for knowledge
- STE for profit
- STE for competitiveness
- STE for growth
- STE for employment
- STE for reconstruction and recovery
- STE for wellbeing & quality of life
- STE for safety, security & social cohesion
- STE for sustainability & resilience

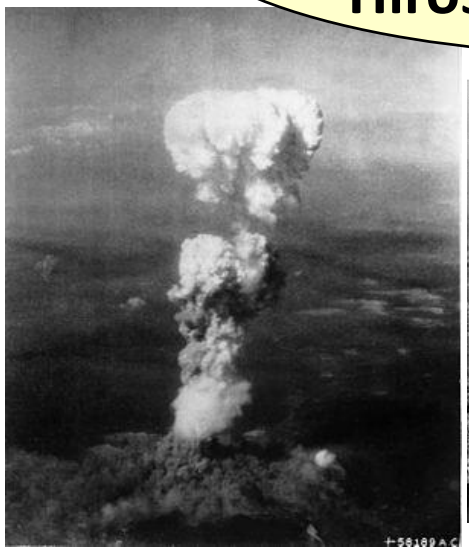
Local – national – regional – global

Reshaping ST&E policy and its ecosystem

Lessons learned in Japan's modern society

***Case 1*: 150 years ago;**
The Meiji Restoration

***Case 2* : 70 years ago:**
World War II and Hiroshima & Nagasaki



***Case 3* : 7 years ago, March 11 2011; Massive Earthquake, Tsunami and Fukushima Nuclear Disasters**

1868 - 1905 : “Meiji period”; Opening of Japan and Beginning of modernization

Case 1.

Where we stand now

- International situation at the end of the Tokugawa period
  *1840: “The Opium War”. China (Ching dynasty) completely defeated by UK. *1853: US Perry Fleet arrived in Japan, demanded opening of the country.
- Opening the country from 250 year-isolation. Changing policy to active introduction of modern technology and system from the West to counter superiority of western military and economic powers.
- Meiji new Government’s top priority; “Increasing wealth and military power” and “promotion of industry”.

The top political leaders recognizes the importance of S&T and its system “The IWAKURA Mission to the West”, 1871-1873

- Actively introducing western advanced technology, system and institutions. 1860’s – 1880’s.
  *Railway and Telecom (Tokyo to Yokohama) ; UK
  *Textile industry: “Tomioka silk mill” ; France
  → “Fostering export industry.
  Foreign exchange acquisition policy.
  *Steel Works (Kamaishi) ; Germany.
  *Shipbuilding (Yokosuka) ; UK
  *Agricultural engineering ; USA

Background of success of the Meiji government's policy "Increasing the wealth and military power" and "promotion of industry".

- Education oriented policy. Accumulation of human resources (learning ability).
  (Diffusion of education system across Japan during the Edo era (before the Meiji Restoration))
- "Samurai"(warriors) of Edo Period changed to Intellectuals (with the ability to read books and mind-set), Gov. officials, industry leaders, scientists / engineers.
- Selective introduction of western knowledge, technology, education and legal system.
- Retaining Japan's initiative
  *Hired foreign professionals only for guidance.
  *Japan kept independence in selecting foreign technology and system.
- Big role of private enterprises
  * Started by the government then transferred to private companies.
  Keeping moderate distance with the gov. (ex : Mitsubishi, Mitsui and Sumitomo).
  *Mobility of human resources.
- Confucian ethics, values, loyalty and patriotism
  * Human resources devoted themselves to the public and company.
  *"Samurai" recognized government and company as targets of loyalty.

Case 2.

Postwar reconstruction period (1945 - 55)

Where we stand now

Japan's science and technology policy after the end of World War II

*** Recognizing that Japan was defeated by differences in science and technology. WW-II called " War of Science".**

*** Wider awareness of the need for S&T promotion.**
Considerable low levels of Japan's S&T from US and Europe.

*** Many scientists and engineers moved from military to civil sectors: ex. car, railway, electronics, energy, materials and chemicals.**

*** Introduction and learning of technologies and management (quality control etc.) from USA.**

***Macro economic policy: "The priority production system"; Coal, steel and electricity. From agriculture economy to manufacturing.**

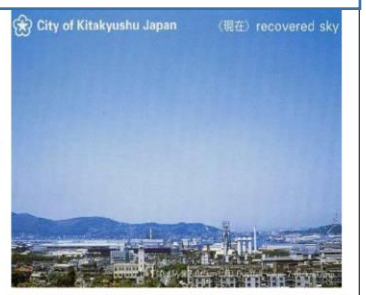
“Innovation for Sustainability”

Japan’s decoupling of economic growth from negative environmental impact.
Here are examples by Japan’ efforts in the past decades. We can transform our society by combination of technological innovation & social innovation.

50 years ago

Present

Industrial area in Kyushu



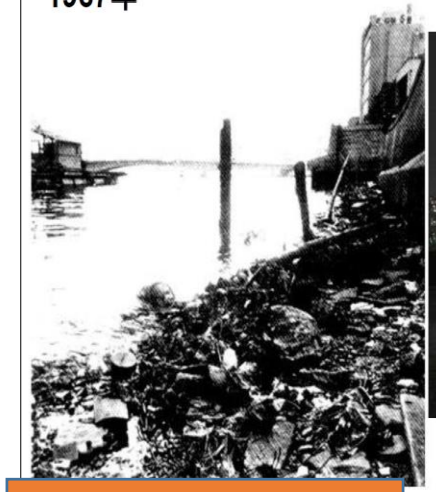
50 years ago

Present

Tokyo metropolitan area

1967年

現在



50 years ago

Present

“OECD Environmental Performance Reviews JAPAN” ; “Japan has made steady progress in addressing a range of traditional environmental problems, notably air emissions, water pollution, and waste management.”

Case 3.

7 years ago: March 11 2011 ; Massive Earthquake, Tsunami and Fukushima Nuclear Disasters

"The Fukushima nuclear disasters " (OECD Report on Science Advice)

On March 11, 2011, a massive tsunami provoked by an exceptionally large earthquake affected a vast area that included the Nuclear Power Plants. Disruption of the cooling system for the reactors led to nuclear meltdown and hydrogen explosions, which caused a release of radioactivity outside of the facilities. …it was found that government officers badly lacked timely access to rigorous scientific information and evidence. Designated advisors to the government, other experts and professional societies were not capable of providing consistent and integrated advice.

Newly established independent "**Nuclear Regulation Authority**, on September 19, 2012.Dr. S.Tanaka

"**Code of Conduct for Scientists**" revised by Science Council of Japan (SCJ) , on Jan 25, 2013

The 1st **Chief S&T Adviser to the Foreign Minister,** on September 24, 2015. Dr. T. Kishi

"Even Japan's political leaders struggle to get answers regarding the Fukushima disaster. It is just the latest example of the government's lack of independent scientific advice."
"Politicians fumble for answers, while spokespeople tell confused stories."
(15 December 2011, Editorials,"Nature")

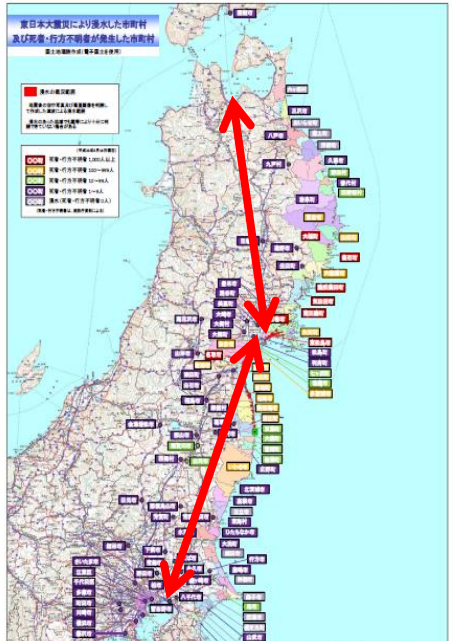
"Rebuilding Public Trust in Science for Policy Making", T. Arimoto et al., "Science" , Sept 7 2012 :
***Principles regarding the roles and responsibilities of science and government in policy making* ;**
Keywords : Gov and science interface, scientific integrity & quality, timely, pertinent & consistent, independent, responsible, broad perspective, uncertainty & diversity, integrating, transparent,

Preparedness and lessons learned

Ex 1: 27 bullet trains systems (running ca 300km/h) successfully stopped without any accidents through the early earthquake detection & automatic stopping system based on accumulation of experiences & S&T development.

Ex 2: Intelligent Transport System across Japan (car navigation & electronic toll collecting system) collected data and made emergency route maps for recovery.

Ex 3. Thousands of students & people successfully evacuated before the Tsunami attack through learnings and trainings/drillings using Tsunami computer simulators.



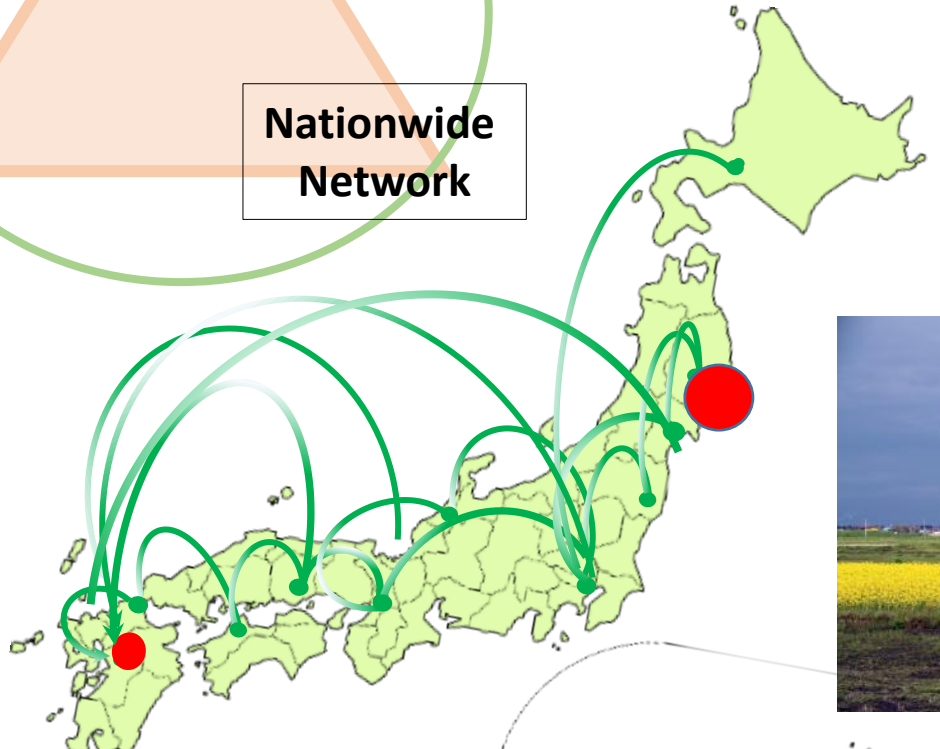
"Big Data Science Project of 3.11.2011 disasters" for redesigning preparedness and future actions.

Recovery and Reconstruction using S&T for quality of life and industries

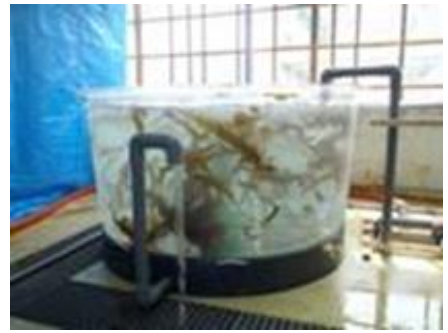
Experience of recovery support for Disaster

Matching Planner

Nationwide Network



Conservation of cultural property



Conclusion : 7 points about Science & Technology and Education for rebuilding broken societies

1. People centric education
2. Institutions: ST&E eco-system
3. Consensus building for continuous support to ST&E
4. Sharing experience, knowledge and technologies
5. Evidence-based policy making and robust science advice system with trust
6. Customization and commonization of knowledge and technologies to address local needs and global SDGs goals
7. International collaboration : local, national, regional and global

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