STI Road Maps and the Circulating and Ecological Economy

Kazuhiko TAKEUCHI

President, Institute for Global Environmental Strategies (IGES)
Chair, Central Environment Council, Government of Japan
Vice-President, Science Council of Japan

Report of the STI Forum
At the High Level Political Forum under the Auspices of ECOSOC: 12 July, 2019
1. Para 27. The challenge is to design STI policies and instruments for the SDGs that translate the universality principle of the Goals into action, while respecting national science, technology and innovation priorities and realities.....

2. Para 36. STI road maps to achieve the Goals need to be customized to fit the circumstances within countries and, at the same time, be harmonized worldwide as a means to structure the necessary knowledge and match problems with solutions. & Para 37. Main elements of the implementation of the road maps include the localizing, mobilizing, prioritizing and customizing of STI.

3. Para 39. Further international support, Member State engagement and partnerships with donors and the private sector will be needed to fill the critical gaps in data, finance and effective implementation. & Para 69. International partnerships could promote increasing investments in research and development and in demonstration projects for climate technologies.
Road Map for Integrated Achievement of the SDGs

Transition Management

Integrated Achievement of the SDGs

Core Concepts of Sustainability Study
- UN, International Agencies, and Global Networks
- Diverse countries from different regions
- Collaboration
- Business Ecosystem
- Multi-level Governance
- Socio-economic System
- Social biological system
- Social System Innovation
- Elemental Technology Innovation
- Social Implementation Science

System Science
- Energy, material and Environment Nexus
- Climate Change and Natural Disasters
- Health and Environment
- Resilient Local Communities
- ESD for Next Generation

STI
- Leading Universities and Research Institutes
- Collaboration
- Multi-stakeholder Engagement (NGO, Business, etc.)

Backcasting

Global Issues such as Social Inclusion
Integration of environmental, economic and social dimensions
Integrated response to declining and aging population, Local revitalization
CES to achieve integrated solution for those local issues

Exchange of People, Information, and Technologies
Connect to Global Communities

Smart Grid
Renewable Energy, Energy Saving
Decarbonization

Reduce, Reuse, and Recycle
Resource Circulation

Interaction and Human Exchange
Harmony with Nature

Safe and Secure Community (e.g. Eco-DRR, EbA)

<Urban>
Produced Capital

< Rural>
Natural Capital

(IGES, 2019)
Next Generation Local Energy Model for Kitakyushu City

(2) Development of human resources for SDGs
- Development of human resources for SDGs in companies, etc.
- Lecturers, programs

(3) Visualization and development of a base for SDGs
- Creation of showrooms for residents and tourists and spaces for ideas and events
- Exhibits and dissemination of information
- Supply of human resources and ideas

(1) Formulation of SDGs strategy
- Formulation of strategy around local energy and forestry industry
- Recycling of materials and equipment
- Promotion of solar power and biomass

Concentration of wind power industry
- Manufacturing of equipment => installation => maintenance => reuse and recycling

Hydrogen and energy management
- Supply of hydrogen
- Use in energy, resource recycling, and forestry industries

AI and robotics industries
- Use in energy, resource recycling, and forestry industries

Support for lifelong activities and civic actions
- Job creation, active seniors, etc.

Creation of a comfortable and disaster-resilient city
- Protection from disasters through independent distributed power sources, autonomous driving, monitoring, etc.

Realization of a low-carbon and post-carbon society
- Renewable energy, energy savings, hydrogen, etc.

Environment
- New international environmental businesses
- Sharing Kitakyushu’s actions and cooperation on projects

Society
- Promotion of forestry industry
- Promotion of recycling industries
- Reuse and recycling of PV and storage, etc.

Economy
- Supply of materials and equipment
- Use of community-operated solar power facilities and bamboo biomass

Energy industry as industry core
- Concentration of wind power industries, biomass industries, etc.
- Creation of recycling, forestry, hydrogen/energy management/AI industries, etc.

(4) Formation of SDGs platform and network
- Disseminate information on activities based on SDGs studies by IGES, draw out project needs
Case Study in Semarang City, Indonesia

- **Semarang’s City Resilience Strategy (CRS):** One of its pillars aims to improve the city’s **public transport system** by enhancing management and service quality.

- **Importance of improving transportation:** brings **multiple benefits** - mitigation of climate change and environmental pollution; new economic opportunities (jobs, markets); competitive human resource development (schools, social interaction), and others.

- **Transformative processes:** encouraged by policy-oriented research activities, multi-stakeholder participation to practical actions to **change younger generation’s behaviour** and project developments on **Low Carbon Transport system**.