Regional Dialogue on Sustainability Science Policy to Support the Post-2015 Development Agenda

The Role of Sustainability Science in Advancing the Future Earth Initiative and the SDGs

Dr. Kazuhiko TAKEUCHI
Director and Professor, Integrated Research System for Sustainability Science (IR3S), The University of Tokyo
Senior Vice-Rector, United Nations University

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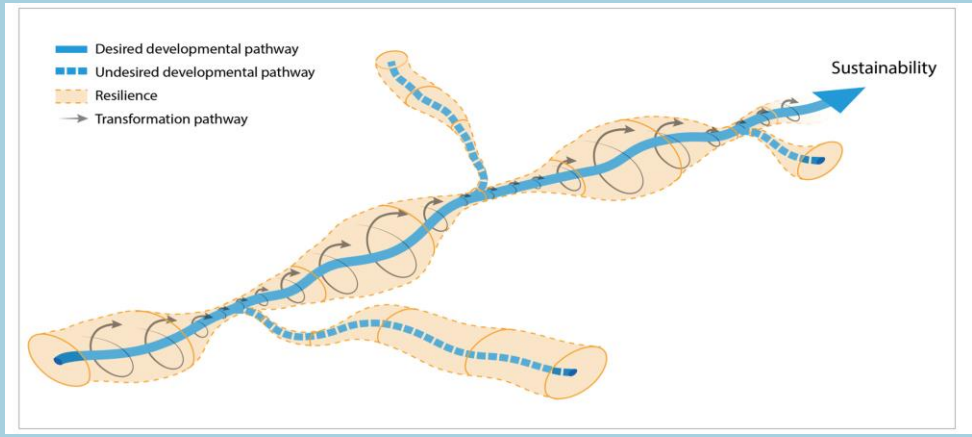
The Progress and Development of Sustainability Science

- Systems perspective: links natural and social systems
- From complex thinking to transformational change
- Transdisciplinary focus, solution-oriented transformative research
- Co-design and co-creation of knowledge, promotes partnerships and collaborative action
- Need for education and capacity development for global sustainability

Sustainability Science Journal

Complementary Relationship between Sustainability and Resilience

- Debates concerning the relationship between sustainability and resilience have become increasingly complex.
- However, they complement each other and defining their relationship is important for beneficial progress.
- The concept of sustainability is a “normative goal”, while resilience is “the capacity” of a system to absorb disturbance.（Elmqvist et al., unpublished）
- The concept of resilience includes not only the capacity to recover from disturbances, but also the capacity to adapt to a new situation.
- By considering the capacity of transformations, each of which have various optional interventions, resilience will be better linked with sustainability.



（Elmqvist et al., unpublished）

Sustainability Science:
Joint UNESCO - UNU - IR3S Symposium

From 8 MDGs… | Post-2015 Development Agenda … to Sustainable Development Goals

Aims:

- discuss issues, concepts and approaches of sustainability science
- explore ways to strengthen international collaboration and enhance the science–policy–society interface

Recommendations:

- Building social and ecological resilience
- Increasing collaboration across disciplinary, social and geographical boundaries
- Enhancing education for sustainable development

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OVERVIEW ARTICLE

Promoting integration and cooperation for sustainability views from the symposium held at UNESCO headquarters September 19, 2013

Joanne Kauffman

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Abstract This public symposium explored ways to integrate knowledge about and strengthen cooperation on complex and interconnected global sustainability issues. (The symposium was organized by the United Nations University (UNU), The University of Tokyo Integrated

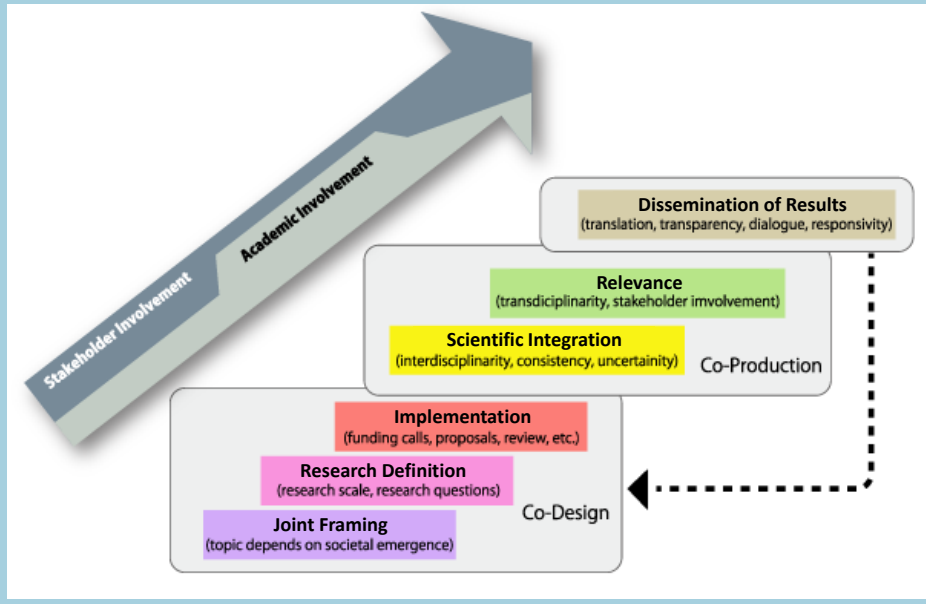
steps that can be taken now to overcome barriers to sustainability and the role of sustainability science in each (a) building societal and environmental resilience; (b) increasing collaboration across geographical and disciplinary boundaries as well as between scientists and

Future Earth
Strategic Research Agenda 2014

A Dynamic Planet
a1 Observing and attributing change
a2 Understanding processes, interactions, risks and thresholds
a3 Exploring and predicting futures

B Global sustainable Development
b1 Meeting basic needs and overcoming inequalities
b2 Governing sustainable development
b3 Managing growth, synergies and trade-offs

C Transformations towards Sustainability
c1 Understanding and evaluating transformations
c2 Identifying and promoting sustainable behaviours
c3 Transforming development pathways

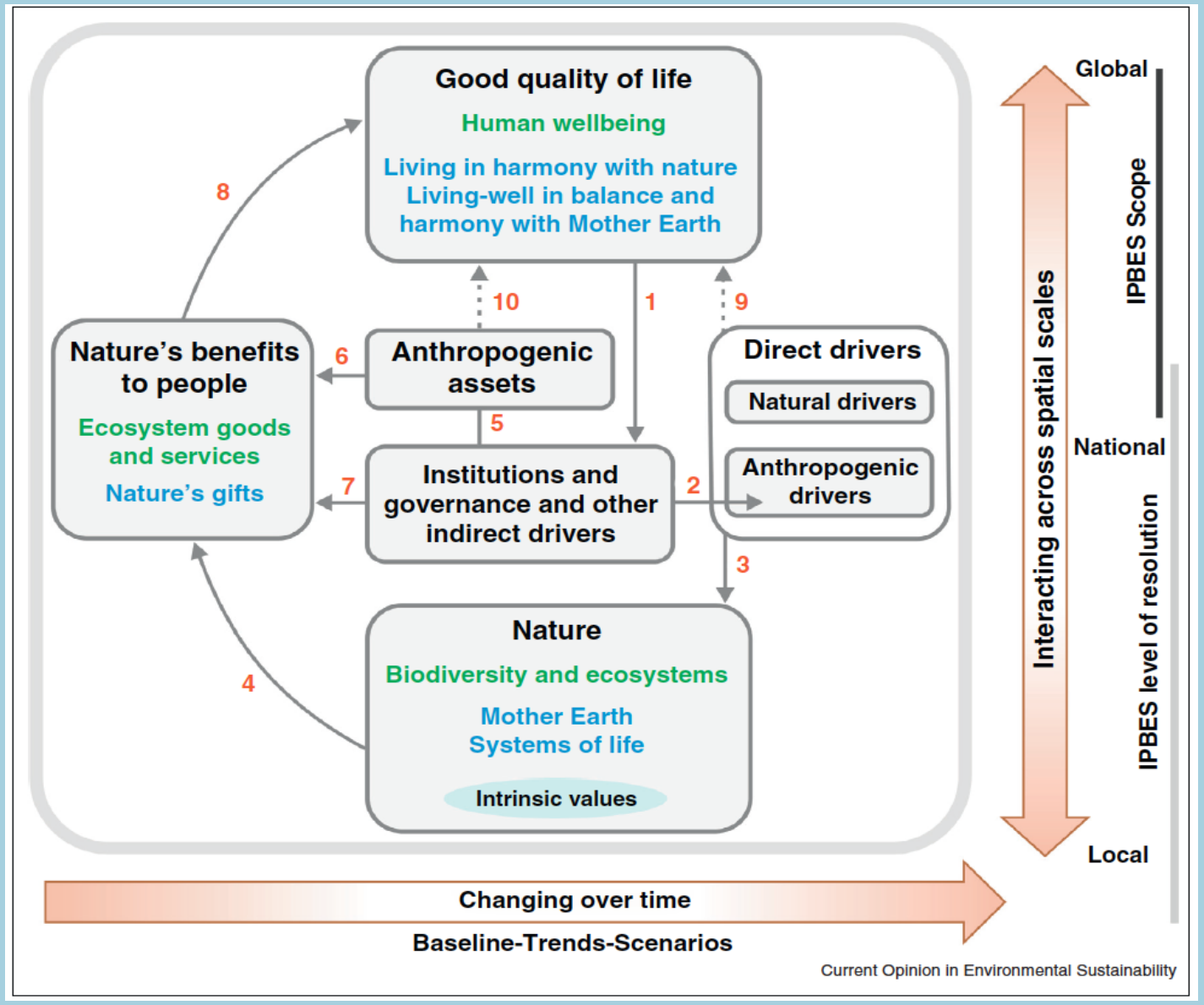


Future Earth (2014) Future Earth Strategic Research Agenda 2014. Paris: International Council for Science (ICSU)

Proposed Sustainable Development Goals to be attained by 2030

Goal 1. End poverty in all its forms everywhere
Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
Goal 3. Ensure healthy lives and promote well-being for all at all ages
Goal 4. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
Goal 5. Achieve gender equality and empower all women and girls
Goal 6. Ensure availability and sustainable management of water and sanitation for all
Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10. Reduce inequality within and among countries
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12. Ensure sustainable consumption and production patterns
Goal 13. Take urgent action to combat climate change and its impacts*
**Acknowledging that the UNFCCC is the primary international, intergovernmental forum for negotiating the global response to climate change.*
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

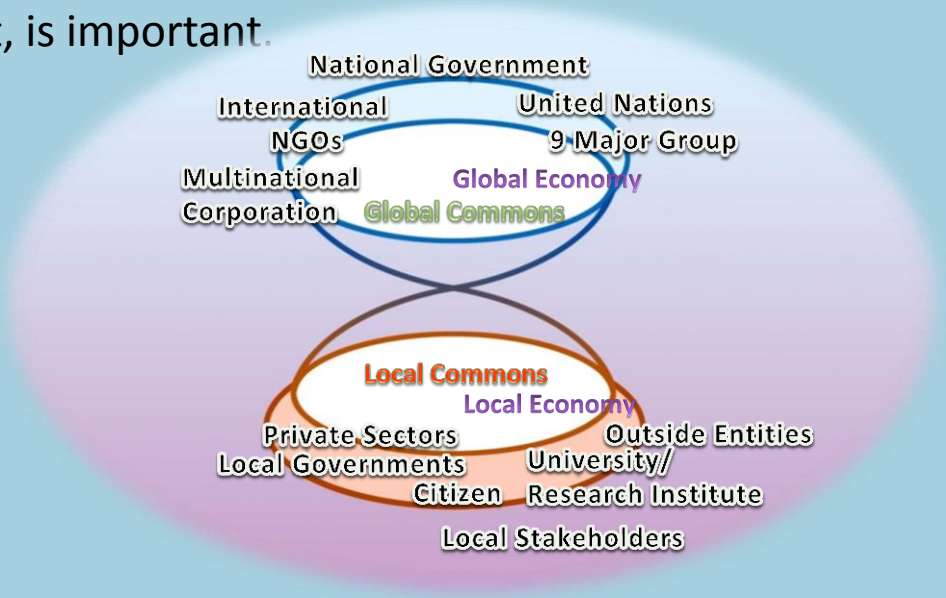
IPBES Conceptual Framework



Diaz et al., 2015

Partnerships and Multi-level Environmental Governance

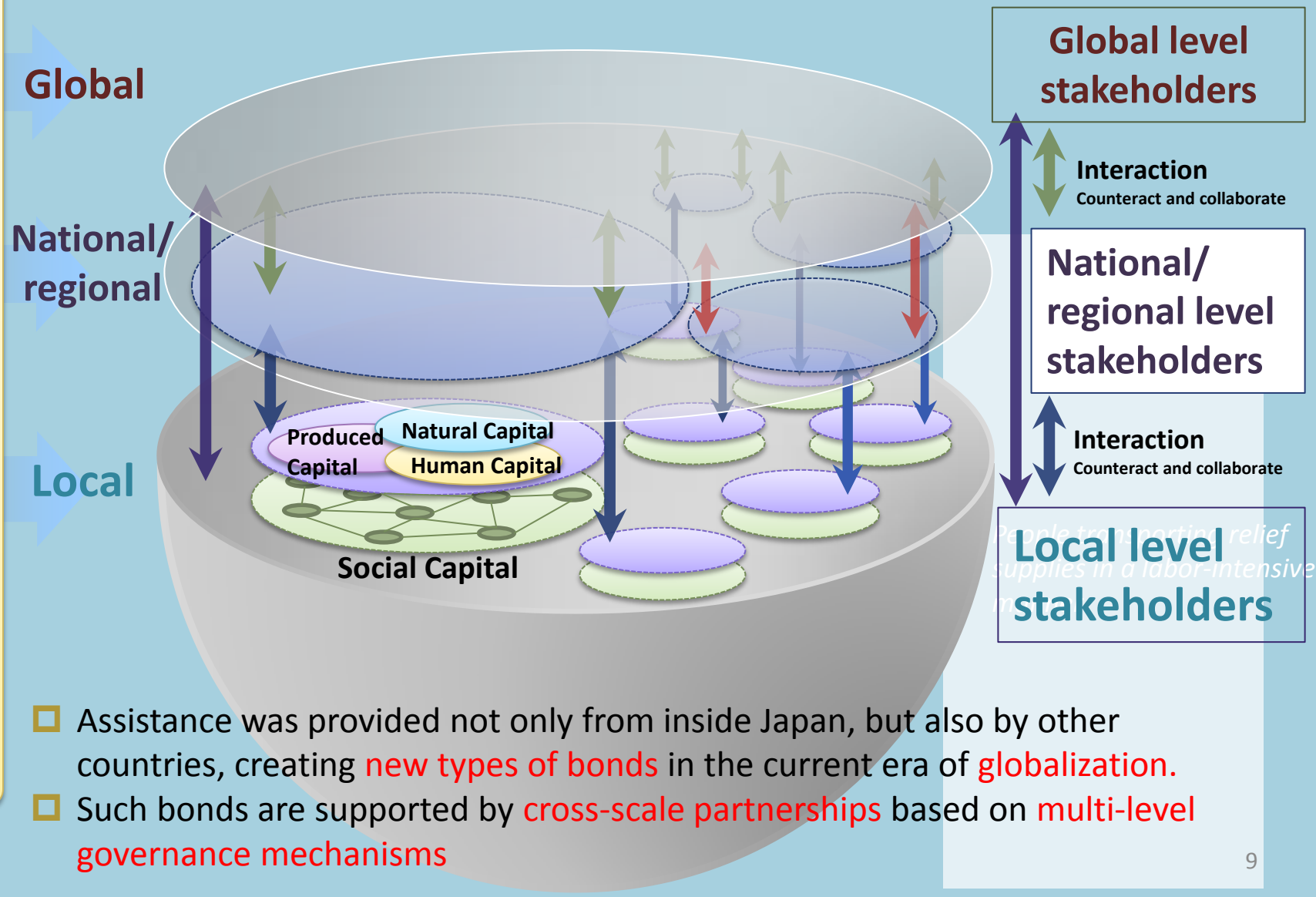
- The relationship between humans and nature, referred to as a Social-Ecological System, is subject to resilience and sustainability.
- Improving human well-being based on the reconstruction of a Social-Ecological System is essential to achieve a sustainable society.
- At the same time, the new governance structure known as "New Commons" should be considered to encourage the reconstruction of a Social-Ecological System.
- It is necessary to build multi-level environmental governance, which is led by various stakeholders at the global and local levels.
- At the same time, the new business model of the Green Economy, which is connected to sustainable economic development, is important.



Nested Governance

Multilevel Governance and Cross-Scale Coordination

Globalization, climate change, biodiversity loss



- Assistance was provided not only from inside Japan, but also by other countries, creating new types of bonds in the current era of globalization.
- Such bonds are supported by cross-scale partnerships based on multi-level governance mechanisms

Strategy for Establishing a Sustainable and Resilient Society

Regional Revitalization by creating a vibrant and attractive local society

Lead the world with global policies

- **Technological innovation**
  - Develop new paradigms through new environment diplomacy
  - Develop relevant echnologies which support sustainable future
- **Social system innovation**
  - Increase value of national land as stock of assets
  - Realize a healthy and spiritually rich life
- **Lifestyle innovation**
  - Expand local economic cycles
  - Realize a virtuous circle for environment and economy

Sound Socio-Ecological and Material- Cycling Sphere

Forest

Country side

River

Sea

A rural society for agriculture, forestry and fishery

A decentralized and self-reliant society (to maintain sound cycles of local resources including natural, materials, and financial resources)

the locally-produced and locally-consumed principle, renewable energy, etc.

◆Natural resources, Ecosystem services

- food, water, timber
- natural energy
- water purification, natural disaster prevention

An urban society

A decentralized and self-reliant society (to maintain sound cycles of local resources including natural, materials, and financial resources)

the locally-produced and locally-consumed principle, renewable energy, etc.

Sound socio-ecological and material-cycling sphere

◆Provide financial and human resources

- participate in conservation activities
- support through socio-economical mechanisms

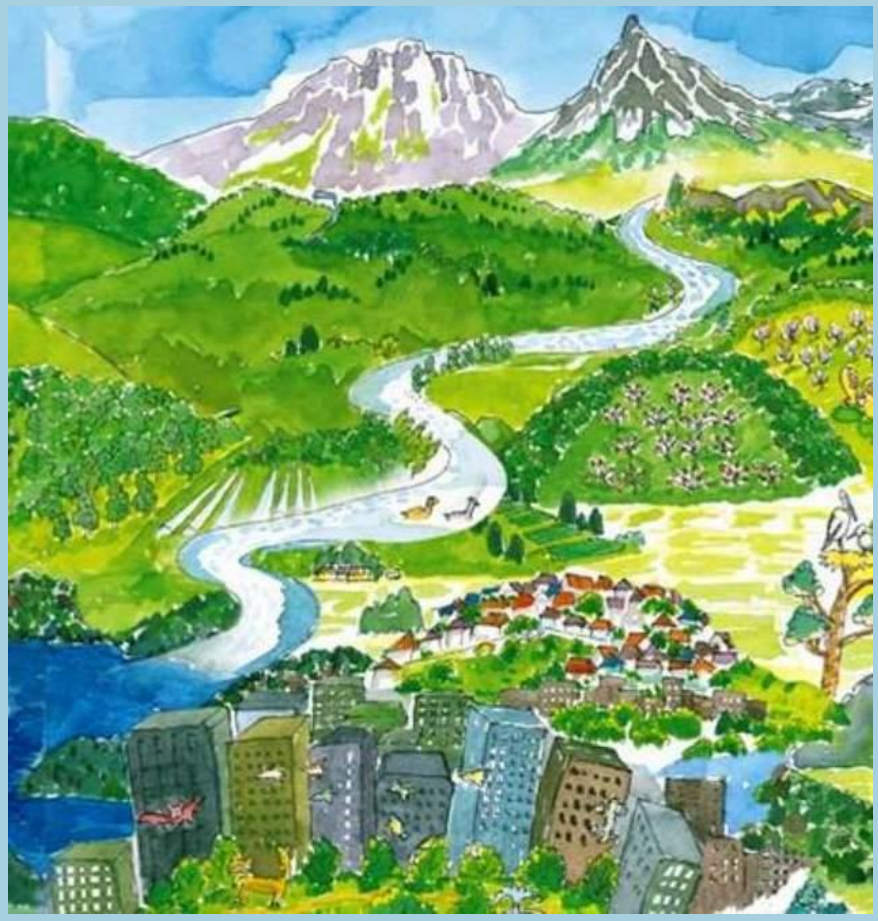
The approach to formulate an integrated and coordinated environmental plan, i.e. a district grand design for the environment, at a level of more broader area (brock) with close collaboration among each "sound material-cycling socio-ecological spheres" are also significant viewpoint.

○Strengthen the linkage among various policies and plans such as city plans, park plans, and implementation plans for global warming counter measure

○Measures to maintain sound cycle of financial and human resources

Social-Ecological Restoration after the Great East Japan Earthquake (Takeuchi et al., 2014)

- Building social/ecological resilience will increase security and contribute to an enhanced quality of life
- Building resilience in the affected area requires a transformation to sustainable agriculture, forestry and fisheries
- *Satoyama* and *satoumi* landscapes can contribute to the revitalization of primary industries and strengthen the relationship between local residents and the landscape
- Decision makers at local, regional and national levels need to take a holistic approach based on sustainability science to develop a robust rebuilding plan for the affected communities
- *Satoyama* and *satoumi* linkages can be a model for building resilient rural and urban communities throughout the world



Satoyama and *satoumi* linkages