

Contributing to policy and utilising research towards the realization of an enriched society in harmony with nature



Contributing to various measures to make the blessings of nature sustainable

Global

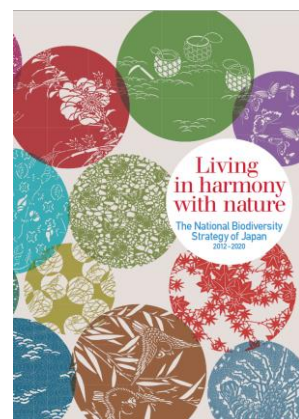
- Contributing to the achievement of Convention on Biological Diversity 2050 goals and regional assessments of the Asia-Pacific from IPBES¹
- Contributing to the realization of Future Earth's² "transdisciplinarity research" through strengthening cooperation among various stakeholders
- Contributing academically to bring about social change toward realizing Sustainable Development Goals (SDGs)

- ¹ IPBES: The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), established in 2012, is the intergovernmental body which assesses the state of biodiversity and of the ecosystem services it provides to society, in response to requests from decision makers.
- ² Future Earth is a new 10year international research initiative that will develop the knowledge for responding effectively to the risks and opportunities of global environmental change and for supporting transformation towards global sustainability in the coming decades.



National, Local

- Contributing to advancement and review of The Basic Environment Plan, The National Biodiversity Strategy in Japan, National Spatial Strategy, and Climate Change Adaptation Plan
- Contributing to the national campaign "Connect and Support Forests, Satoyama, Rivers and Sea" and realization of a society in harmony with nature
- Generating scientific knowledge on measures for revitalization of regional economy and regional biodiversity strategies of municipalities



- This research is conducted under the Theme Leaders below.

Theme 1 : Kazuhiko Takeuchi (Professor, Integrated Research System for Sustainability Science (IR3S), The University of Tokyo Institutes for Advanced Study)

Theme 2 : Tohru Nakashizuka (Professor, Research Institute for Humanity and Nature/Graduate School of Life Sciences, Tohoku University)

Theme 3 : Yoshihisa Shirayama (Executive Director, Japan Agency for Marine-Earth Science and Technology)

Theme 4 : Kohta Asano (Professor, Graduate School of Human and Environmental Studies, Kyoto University)

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Predicting and Assessing Natural Capital and Ecosystem Services (PANCES)

The Environment Research and Technology Development Fund,
Strategic R&D Category
Ministry of the Environment, Japan



This research project (PANCES) predicts and assesses future natural capital and ecosystem services (nature's benefits to people) and their natural and social-economic values by building an integrated model of social - ecological systems. Through the presentation of several scenarios, we aim to demonstrate the ideal form of a society in harmony with nature. We will also explore ways to strengthen interface between science and policy through research and aim to contribute to domestic and international biodiversity policy and international frameworks such as IPBES. PANCES is a large project where 30 research institutes and more than 100 researchers in Japan are working together with their full-scale efforts. In addition, to strengthen cooperation with assessments by IPBES, we welcome prominent researchers in Japan and internationally as advisors.

Project Leader : Prof. Kazuhiko Takeuchi
Integrated Research System for Sustainability Science (IR3S),
The University of Tokyo Institutes for Advanced Study (UTIAS)



Enhancing collaboration between science and policy

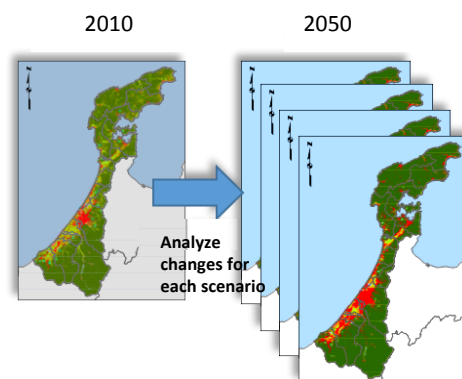
Theme 1

Development of an integrated model of social-ecological systems and strengthening of the science-policy interface

Building an integrated model that enables future prediction and assessment of natural capital/ecosystem services due to population distribution and changes in land use under multiple scenarios. Additionally, broadening our horizons in many Asia regions and use the results of this integrated model to strengthen the interface between science and policy.



Cooperation by various stakeholders



Example of land-use change prediction under future scenarios created by the integrated model

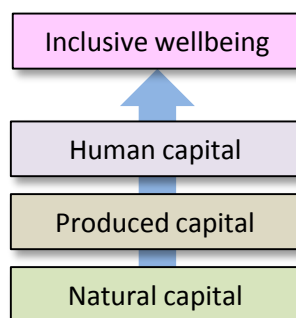
- Future scenarios
- Integrated model
- Policy options

- Social-economic value
- Inclusive wellbeing
- Governance

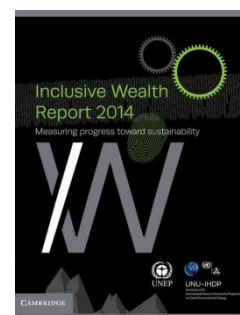
Theme 4

Prediction and assessment of social-economic value of natural capital and ecosystem services, and multi-level governance of natural capital

Developing ways to predict and assess the social-economic value of natural capital and ecosystem services in terrestrial and marine ecosystems, and consider ideal policies to maintain and improve them in the future. Also, considering multi-level governance approaches with the cooperation of stakeholders from various backgrounds to conserve and nurture natural capital.



Various capital supports inclusive wellbeing



Inclusive Wealth Report 2014, a report on the Inclusive Wealth Index

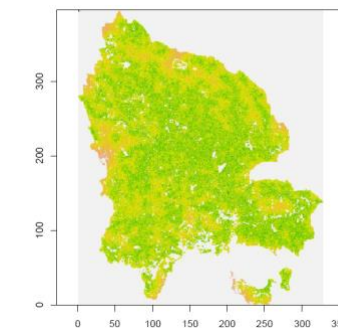
Theme 2

Prediction and assessment of natural values from natural capital and ecosystem services of terrestrial ecosystems

Information on terrestrial natural capital and ecosystem services (such as provisioning services of agricultural products and timber, regulating services such as watershed management and climate adjustment, cultural services such as landscape formation and sightseeing) are quantified and geographically mapped. The variable factors will be analyzed and develop prediction/assessment methods.

In collaboration with Theme 1, a model development and future scenarios will be considered.

- Prediction and assessment of natural capital/ecosystem services (blessings of nature)
- Visualization and mapping of assessment



Prediction and assessment of terrestrial natural capital (amount of above ground biomass in pasture land)



Example of terrestrial ecosystem services (wild vegetables)

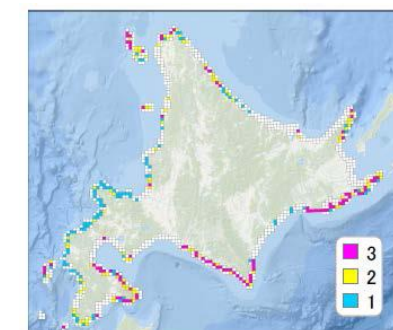
Theme 2 and Theme 3 will be collaboration to clarify the interaction between terrestrial and marine ecosystems.

Theme 3

Prediction and assessment of natural values from natural capital and ecosystem services of marine ecosystems

Information on marine natural capital and ecosystem services (such as provisioning services of seafood, regulating services such as wave reduction and water purification, cultural services such as landscape formation and sightseeing) are quantified and geographically mapped. The key driving forces will be analyzed and develop prediction/assessment methods.

In collaboration with Theme 4, assessment of natural value, analysis of traditional knowledge and governance will be considered.



Prediction and assessment of marine natural capital (area of kelp forest)



Example of marine ecosystem services (seafood)