



**PREDICTING & ASSESSING NATURAL CAPITAL & ECOSYSTEM SERVICES**

The Environment Research and Technology Development Fund (ERTDF)

Strategic R&D Category  
Ministry of the Environment, Japan



# Predicting and Assessing Natural Capital and Ecosystem Services (PANCES)

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## International Context



### The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES)

- Provides regular updates on the scientific status and trend of **biodiversity and ecosystem services**, and their relationship with **human wellbeing**,
- Thereby supporting several **multilateral agreements** and other policy processes.



IPBES-1, 21-26 Jan 2013

### CBD

- **Aichi Biodiversity Targets** (by 2020)
- **SATOYAMA Initiative** (from 2010)
- **National Biodiversity Strategy**

UNFCCC

IPCC

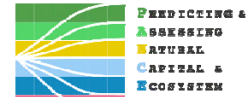
Future Earth

### [Agenda] Scientific assessment and policymaking support from the more transdisciplinary and integrated perspective

- Strengthen **science-policy interface** (Priority: Scientific assessments and knowledge foundation by collecting credible **indigenous and local knowledge (ILK)**).
- Implement scientific assessments on biodiversity and ecosystem services at and across sub-regional, regional and global levels. (**Asia-Pacific regional assessments**)
- Address **methodological issues** (Priority: Study on tools and methodologies for **scenario analysis and modelling of biodiversity and ecosystem services**)
- Communicate and evaluate **platform activities**, deliverables and findings.

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# Research Objectives and Related Activities



## Objectives

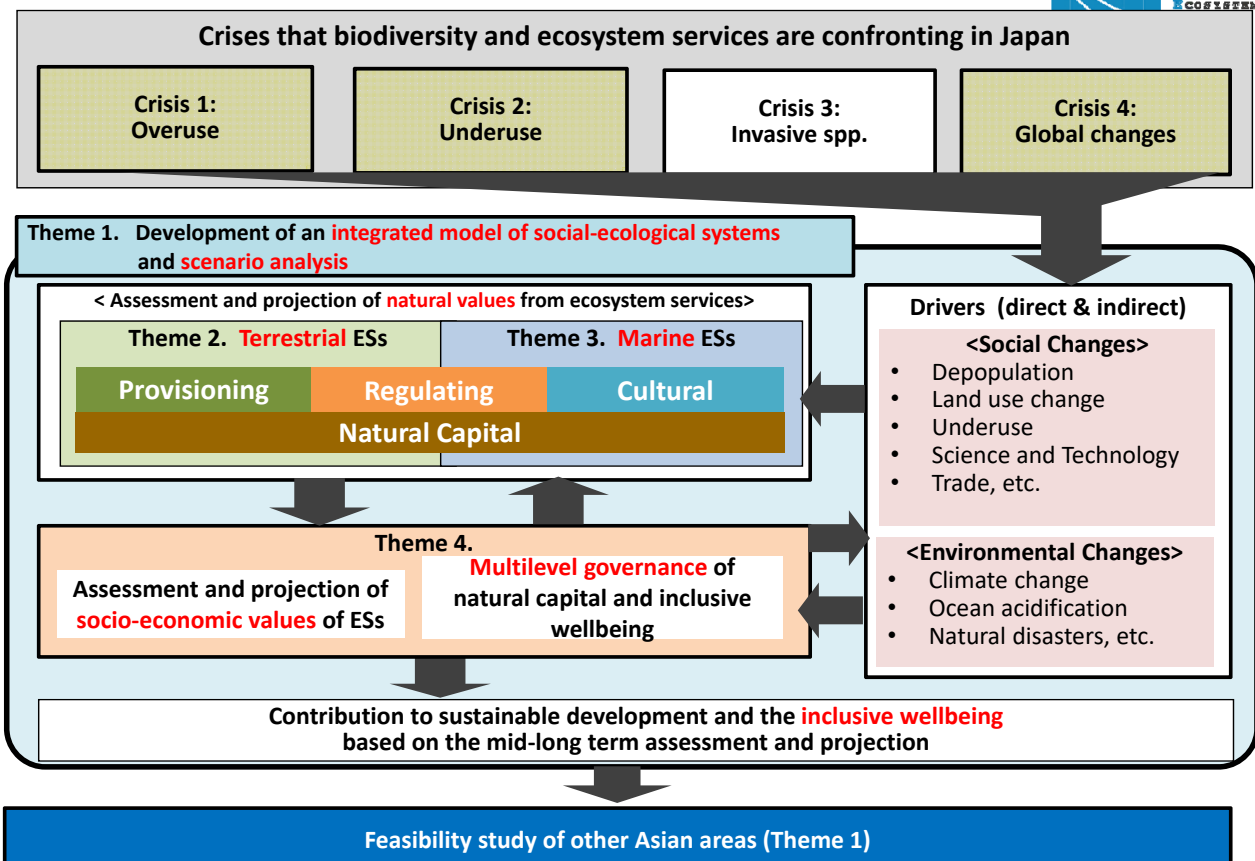
- Develop an **integrated assessment model of social-ecological systems** to predict and assess natural and socio-economic values of natural capital and ecosystem services under different **future scenarios** of socio-economic conditions and policy options;
- Design a new conceptual framework to promote **multilevel governance of natural capital** to maintain and improve **“inclusive wellbeing”**;
- Demonstrate the integrated assessment model at both **national and local scales** in Japan, and examine **effectiveness and applicability** to other areas in Japan and beyond.

## Past related activities



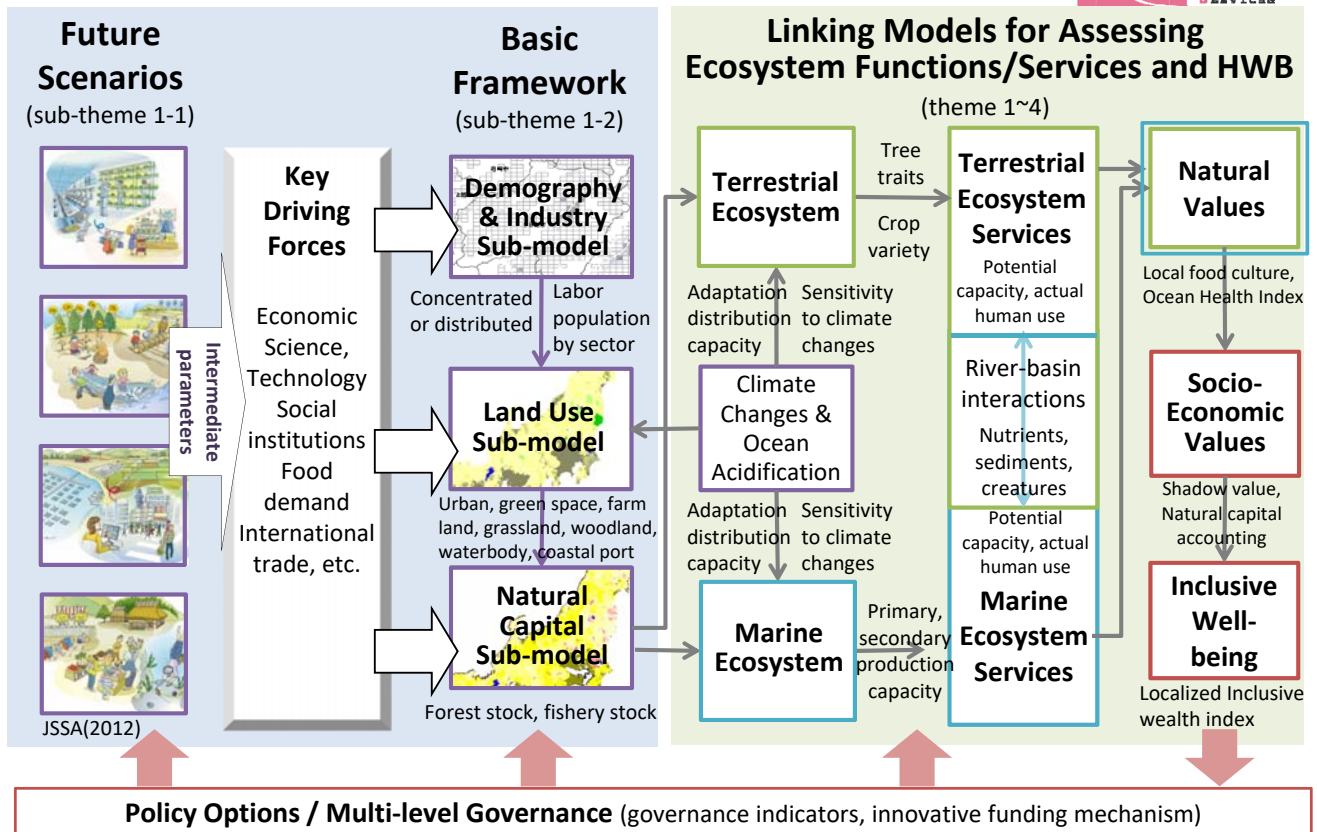
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# Framework of the PANCES Project

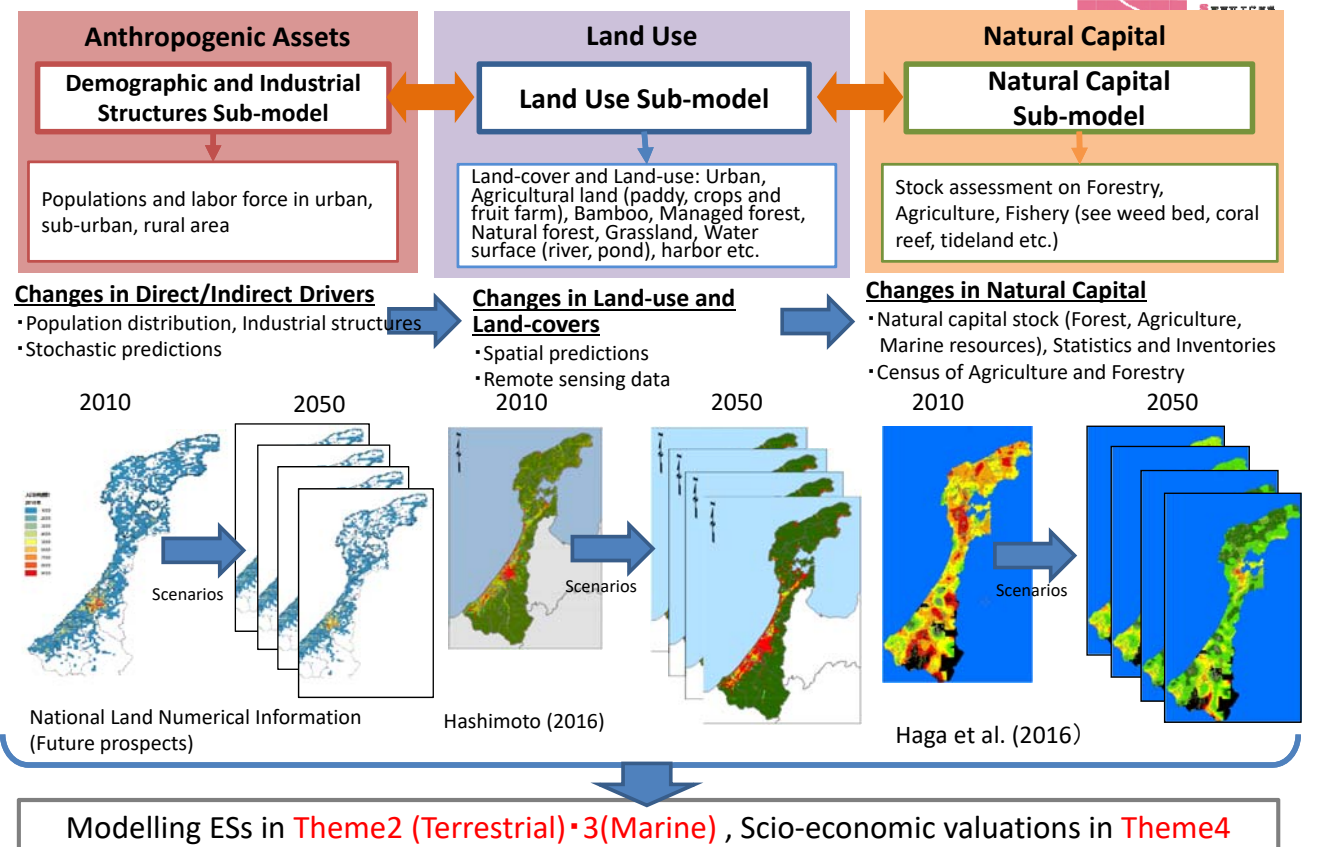


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# Framework of PANCES Scenarios and Models

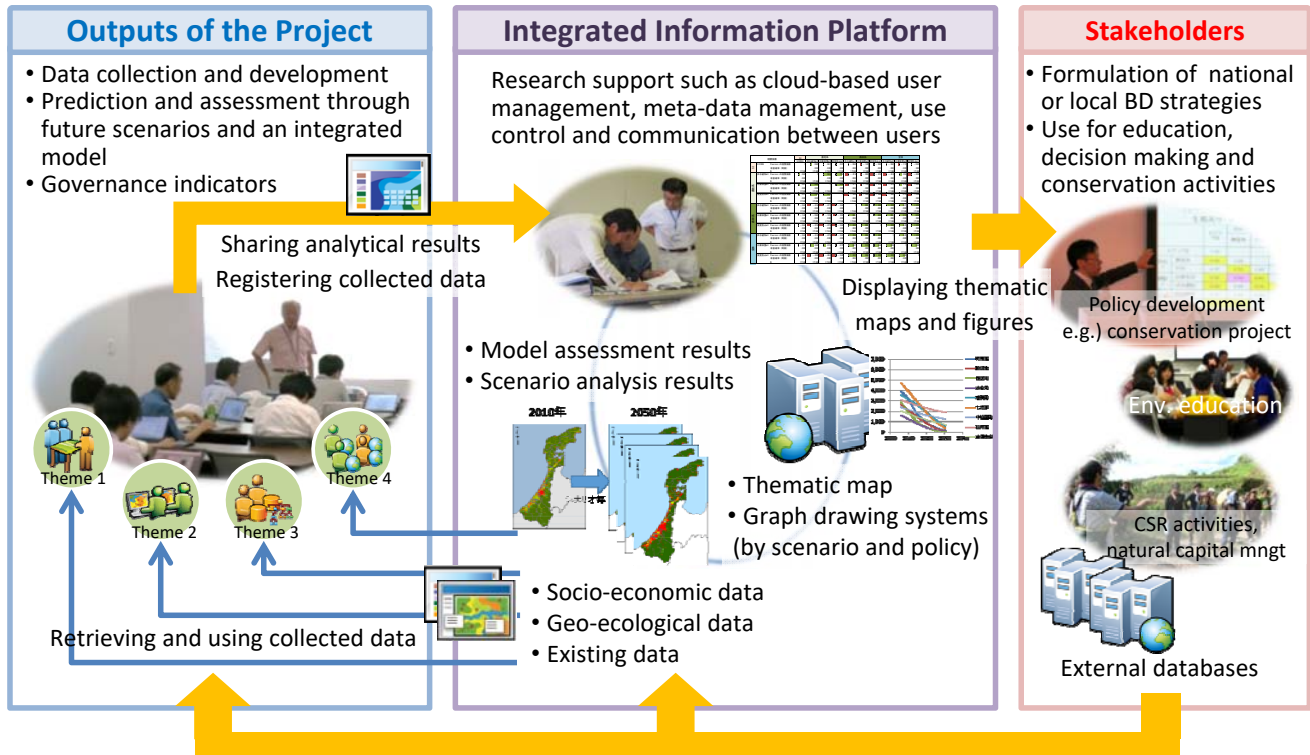


## Example of modeling exercises

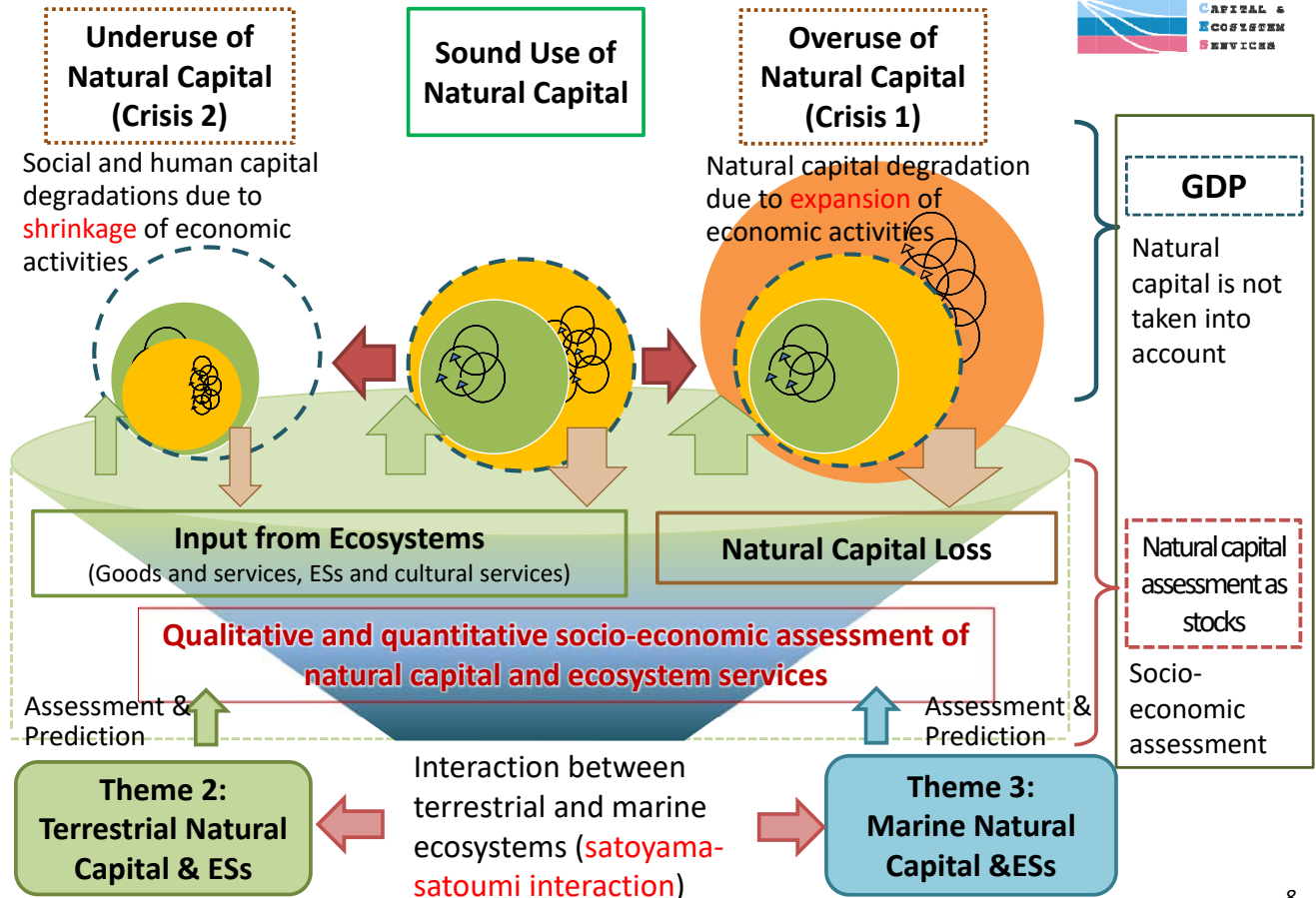




# Strengthen science-policy interface through the use and management of information platform



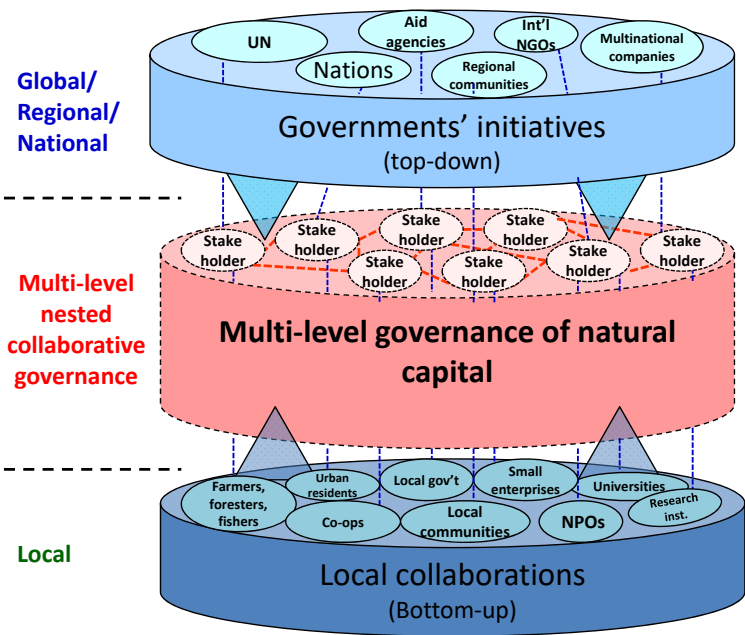
# Interaction of Natural Capital and Economy



# Multi-level Nested Governance of Natural Capital



- ◆ It is necessary to create mechanisms for collaborative management in order to avoid degradation of **natural capital as stock**, and to promote sustainable provision of **ecosystem services**.
- ◆ It is necessary to explore new governance structures, or “new commons” where **various stakeholders** engage in horizontal cooperation.
- ◆ It would be effective to build **multi-level and nested governance structures** that value bottom-up activities at the local level while connecting with global networks.



Mechanism for cooperative management of natural capital based on nested collaboration among different stakeholders

## Study Sites & Science-Policy-Society Interface



### Study Sites:

- ▣ Japan-wide assessment
- ▣ Three major case-study sites
  - Hokkaido (Bekambeushi River Basin)
  - Noto Peninsula & Sado Island
  - Okinawa Islands

Japan-wide assessment of natural capitals and ecosystem services



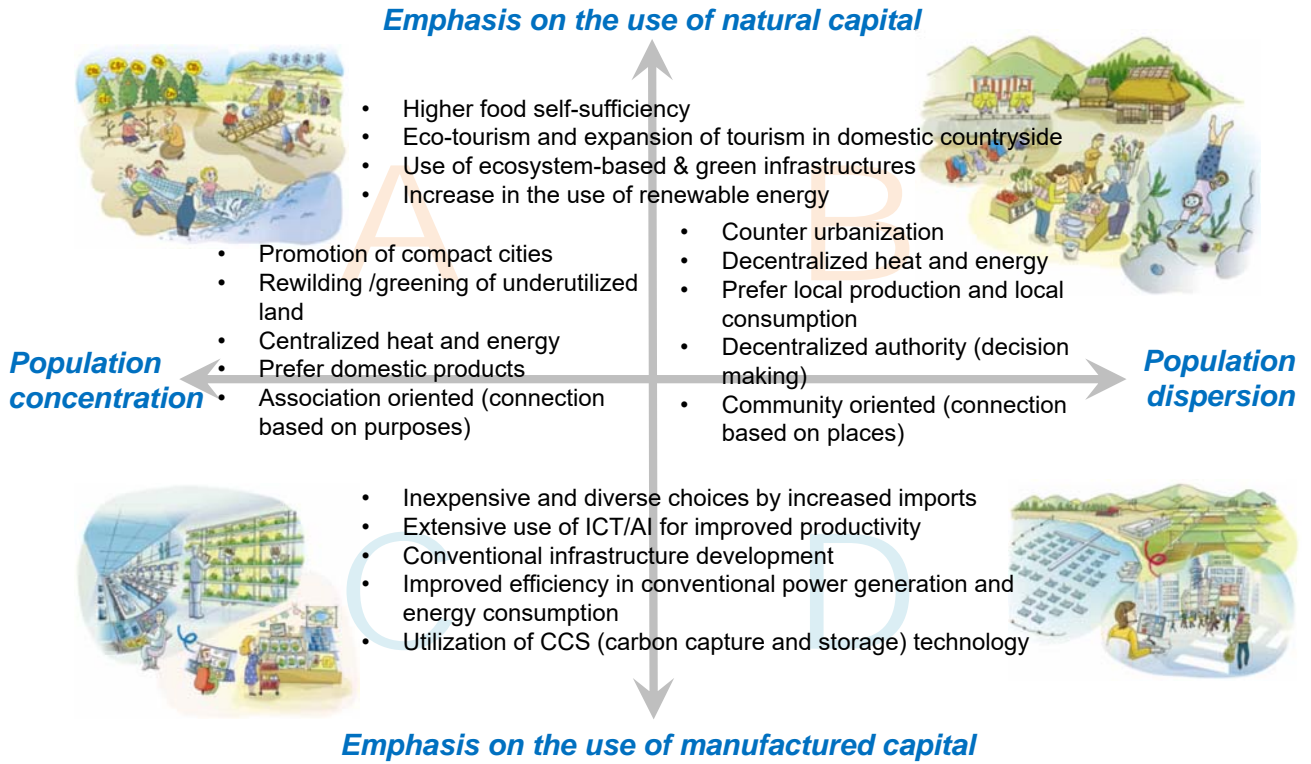
### Science-Policy-Society Interface:

- ▣ **Participatory scenario co-design** with multi-stakeholders
- ▣ **Collaboration with local governments, policy makers and practitioners** including private sectors
- ▣ Promote **multi-level governance** of natural capital through **connecting international initiatives and local actions**

# Progress of Scenarios Development through Delphi method



**Base trends:** population decline, aging and low economic growth  
**Uncertainties:** effective utilization of nature, population distribution



## The Expected Outputs and Outcomes



### [Outputs]

- Inputs to **CBD, IPBES regional and global assessments, Ecologically or Biologically Significant Marine Areas (EBSAs)**, and ecosystem-based **climate change adaptation (IPCC)**.
- Contributions to **national and local biodiversity strategy action plans** in Japan.



The National Biodiversity Strategy of Japan 2012-2020

### [Outcomes]

- Promote implementation of **Sustainable Development Goals (SDGs)** and localization of **Inclusive Wealth Index**.
- Collaborate with international global environment research initiatives such as **Future Earth**.
- Contribute to the establishment of **Green Economy** in **Asian region** through efforts in **International SATOYAMA Initiative**.
- Contribute to **revitalization of rural economy** as Japan's urgent issue through developing **new business models** and **multilevel governance** of natural capital.



1<sup>st</sup> Asian Conference on Biocultural Diversity (27-29 Oct. 2016)

# For more information about PANCES



**Project Website (<http://pances.net/top/>)**