

## Current Feasibility Studies

Feasibility Studies are based on proposals solicited annually by RIHN from the research community at-large. If approved by the Project Review Task Committee, lead researchers are granted seed funding in order to develop their proposal for Full Research. FS status can be maintained for no longer than two years.



Above: KONDO Yasuhisa, Primeval window, Wadi Tanuf, Oman

Bottom: UEHARA Yoshitoshi, Interview Survey in Santa Rosa, Philippines

## An Interdisciplinary Study toward Clean Air, Public Health and Sustainable Agriculture: The Case of Crop Residue Burning in North India

HAYASHIDA Sachiko, Nara Women's University

Area : North India

Human health in many developing countries, and especially India, is often threatened by declining air quality. This study tackles the issue of air pollution arising from large-scale burning of rice straw after harvest in the state of Punjab. Burning of rice straw in Punjab has been linked with significant air pollution in Delhi and surrounding regions. To address the problem, we will take an interdisciplinary approach and pursue a pathway of social transformation toward clean air, public health and sustainable agriculture.



A photo of straw burning taken at Ludhiana in the state of Punjab on November 2, 2018.



Time series of PM2.5 values that were exposed to the project PI when visiting Punjab on November 2, 2018. The sudden increase of PM2.5 at 14:00 is corresponding to her encounter with a straw burning shown in the Photo 1. Note that the WHO guideline of 24-hours average criterion is 25 µg/m<sup>3</sup>.

**FS | Strategic and Practical Transition Research to Establish City Energy Systems Sustainable for the Next 1,000 Years**

**KOBASHI Takuro, National Institute for Environmental Studies**

Area : Kyoto, Shenzhen, San Diego

Using increasingly cheaper renewable energy, we aim to decarbonize urban energy systems and establish sustainable energy systems for the next 1,000 years. Taking Kyoto, Japan, Shenzhen, China, and San Diego, California as cases, we conduct research on techno-economic analyses, Future Design (FD), smart cities with culture and traditions, distributed energy systems, energy policy and institution, and sustainable culture, practice, and behavior. Working with citizens, policy makers, NGOs, industries, and researchers, we aim to realize urban energy transitions toward sustainable and livable cities by 2040.



Photo With researchers at China Development Institute in Shenzhen.

**FS | Sustainable Urban Design Using Inclusive Wealth**

**MANAGI Shunsuke, Kyushu University**

Area : Japan and other countries

In the arena of global environmental policy, the past several decades have seen some major accomplishments in setting goals. At the onset of 2016, the United Nations ushered in a very ambitious list of goals to be achieved by 2030. The 17 Sustainable Development Goals (SDGs) include the elimination of poverty and hunger, realization of gender equality and reduction of social inequalities, as well as peace, justice, and new institutions and partnerships. The 13th goal of SDGs is devoted to “Take urgent action to combat climate change and its impacts.” Accordingly, the Paris Agreement was reached at the COP21 on 12 December 2015, and entered into force in the next year. In particular, the Agreement determines that all countries put an effort to limit global temperature rise to 2 degrees Celsius at most.

This ambitious target-oriented approach to tackling environment and development challenges is commendable in many ways. It serves to share the status of the topic with a wide audience on the globe. Moreover, the goals may facilitate local regions in the “downscaling” of global goals, leading to local initiatives to complement global solutions. We build on the past achievements of Inclusive Wealth Report (IWR), but extend the analysis both in depth and breadth. In particular, our target is to develop a theory of how the idea of inclusive wealth can be put into general practice.



Inclusive wealth concept: physical capital + human capital + natural capital = inclusive wealth

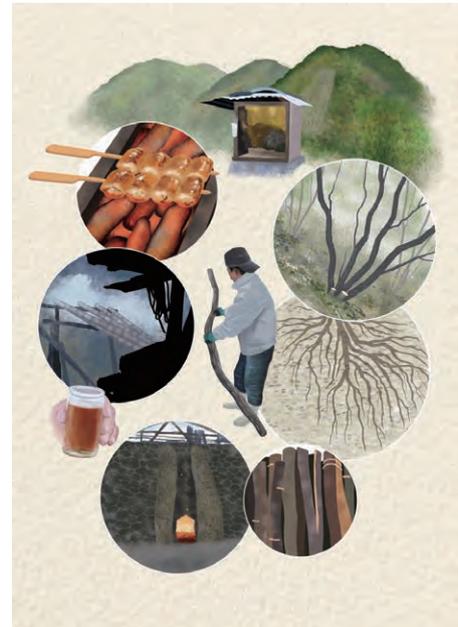
## FS Humanities for the Environment: Developing a Cultural Approach to Environmental Knowledge

Daniel NILES, RIHN

Area : Japan, Thailand, California

This project takes a humanistic approach to the study of environment and environmental problems. Its central goal is to identify non-scientific bodies of environmental knowledge that have sustained communities for generations, centuries, and millennia, to describe the structure and quality of this knowledge, and derive lessons of its relevance to contemporary social-ecological challenges. Project research explores agro-ecosystems and food systems, medicinal knowledge, built environment, and traditional craft as expressions of relatively localized systems of environmental knowledge. It examines the ways in which such traditional forms of knowledge operate primarily in the cultural realm and yet are also essential to cultural and ecological persistence through time.

This project examines the links between material culture and landscapes from local actors' points of view. This graphic describes the links between forest landscape and ecology, quality of timber, techniques of kiln management, and use of high quality charcoal (known as binchotan) produced in Wakayama Prefecture, Japan.



## FS Future Image of Living Sphere by Restructuring Sustainable Relation between Humans and Land

OKABE Akiko, Graduate School of Frontier Sciences, the University of Tokyo

Area : Informal settlements in Latin American countries

Informal settlements constitute an indispensable part of recent global socioeconomic world. While most discussion of improvements of their livelihoods has centered on securing tenure by consolidating property rights, this project focuses on the issue of 'possession' rather than property. It encompasses the re-evaluation of the indigenous ontological perceptions of the environment. The goal of this project is to demonstrate the potential of human-land relationships based on the perspective of 'Living Sphere Tenure Security' in real neighborhoods in Latin America. It does so with the subjective contribution of local people through participatory micro-practices as well as through alternative proposals to the local government plans and policies.



Micro-practice with local people to mitigate erosion by building piling walls in Barrio Cantera, an informal settlement with landslide risk in San Martín de los Andes, Argentina. October 2018.

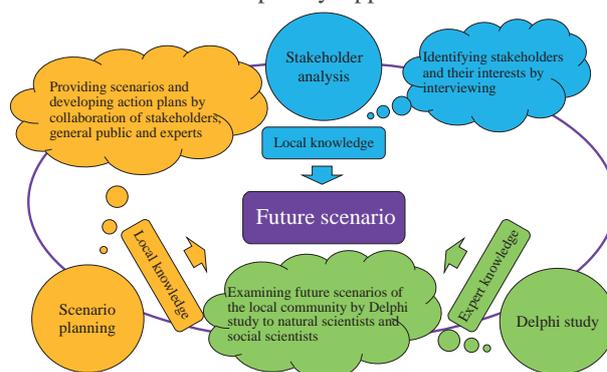
**CORE FS** **Development of the Methodology for the Integrated Future Scenario Building with Trans-disciplinary Approach**

**BABA Kenshi**, Faculty of Environmental Studies, Tokyo City University

Area : Beppu, Hakone, and other local communities with groundwater or hot spring resources

As trade-offs within nexus issues of water-energy-food usually come along with scientific disputes, building a consensus among stakeholders using scientific evidence is required to realize a sustainable society. To this end, we try to develop a transdisciplinary methodology for integrated future scenario building. We intend to establish the methodology to improve science-based policy-making processes.

An Idea of Integrated Future Scenario Building with Trans-disciplinary Approach



**CORE FS** **Synthesis, Analysis, and Typology of TD Case Studies aiming at Solving the Global Environmental Problems**

**ONISHI Yuko**, RIHN

Area : Global

Transdisciplinary methods (TD) are increasingly acknowledged as useful to addressing global environmental issues. TD research is undertaken together with stakeholders associated with the issues in various ways, so as to help identify the real causes, societal impacts, and measures that can realistically be implemented. However, TD research is currently exercised using a wide variety of definitions, processes and outcomes. We synthesize TD research by developing a database of case studies. We then analyze the case studies in order to develop a typology and identify regional characteristics and appropriate engagement processes according to societal backgrounds.



TD research database in development



Above: OSHIUMI Keiichi, Rainbow in the sea, Iwate, Japan  
Bottom: KIMURA Aoi, Jungle in Maui, Hawaii

