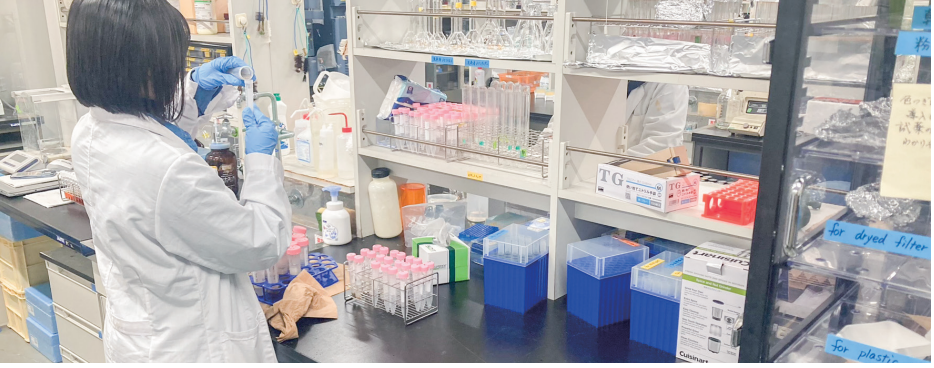

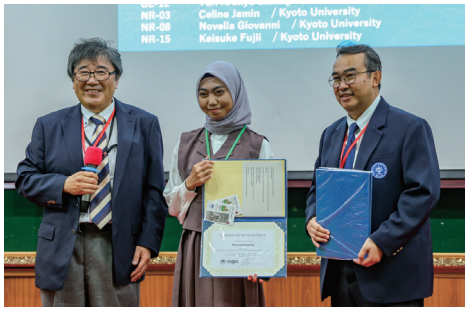

Kyoto University

Graduate School of Global Environmental Studies

京都大学大学院●地球環境学堂・地球環境学舎・三才学林

GUIDEBOOK 2025

ガイドブック 2025

Think Globally, Act Locally

The Graduate School of Global Environmental Studies (GSGES) was established in April 2002 to address the urgent environmental problems of the 21st century. Our primary objective is to help establish global environmental sustainability as a new field of academic study, bringing together ethics, science and technology, and humanities and social sciences. Through our educational and research programs, we seek to foster a new generation of professional practitioners.

Helping us realize this goal is a multidisciplinary and international faculty from fields that include science and engineering, agriculture, law, economics and humanities. The graduate school seeks to 1) achieve in-depth discussion and collaboration among faculty members, 2) train high level researchers and practitioners who can find comprehensive solutions to environmental problems, and 3) support education and research through a variety of innovative frameworks and programs.

Our ground-breaking research initiatives include multidisciplinary projects working with various local governments in Japan as well as extended international academic collaboration with universities and researchers in such countries as Vietnam, China, Thailand, Indonesia, Malaysia, Fiji and France. Our educational program trains outstanding professionals and leaders in environmental management. Core lectures are conducted in English and all students in the master's program have oppotunities to participate in the fieldwork as well as a three month internship program. Two projects –the "Environmental Innovator Program (EIP) -Cultivating Environmental Leaders across the ASEAN Region-" and "Japan Gateway: Kyoto University Top Global Program (JGP) Environmental Studies" launched in 2015 promote internationalization of education and research and establishment of international double/joint degree programs.

The 864 master's program graduates and 269 doctoral program graduates who are actively working in society today represent the results of our efforts to date. We are proud to have educated a large number of talented students who are now playing an active role in universities, research institutions, government offices, private enterprises and NPOs throughout Japan and overseas. GSGES welcomes inquisitive, hard-working and global-minded individuals ready to take part in leading the way to a sustainable future.

Dean, Graduate School of Global Environmental Studies

TANAKA Chihiro

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Introduction

Overview and Objectives

Objectives and features of the Graduate School of Global Environmental Studies

Many serious global environmental problems are posing challenges for humanity in the 21st century. Abundance and convenience are desired by those people living in developed countries but mass production, mass consumption and mass waste have resulted in climate change, ozone layer depletion, water pollution, ground water and soil contamination, and waste-related problems. Since developing countries with rapid population growth are following the same path as developed countries, this will impose new stresses on the planet. The exploitative systems of primary industries such as agriculture, fisheries and mining undermine the growth of developing countries that primarily depend on these industries, and the least-developed countries still must eradicate poverty in order to provide a basic standard of living for their people. Yet there has also been progress, with some countries seeking to achieve sustainable and equitable development in line with the development goals conceived by the United Nations, and many OECD countries, including Japan, now strongly supporting conservation and the recycling of resources.

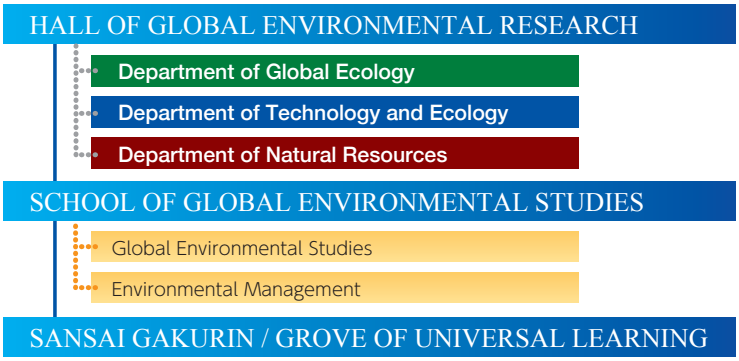
Global environmental problems include many complex issues on every scale, from global to local. We must tackle these problems in two ways — first, by applying research and academic skills in order to gain a greater understanding of the problems involved, and second, by seeking to solve these problems. The first approach requires the training of highly skilled researchers who can apply scientific principles and an appreciation of complexity to the study of global environmental studies. The second requires the training of high-level practitioners who can address problems by implementing sustainable and practical approaches.

Fostering top-notch researchers and practitioners requires innovative educational and research programs focusing on the global environment and drawing on a wide range of disciplines. By incorporating teaching derived from many disciplines in the natural and social sciences, the evolving and innovative field of global environmental studies can offer academic study combined with practical experience in various domestic and overseas organizations.

The Graduate School of Global Environmental Studies is organized flexibly so as to meet the varied needs of both research and education. Some of its unique organizational features are shown on the following pages.

Educational, research and support organizations

Global environmental studies are at an early stage of formation. Research activity needs dynamic development with strategic views combining foresight and flexible interdisciplinary integration. Educational programs require sound, systematic teaching of a broad spectrum of global environmental topics with a view to social relevance and profundity. Research and educational activities, therefore, require different conditions. In order to meet these conditions, the Graduate School includes a research body, the Hall of Global Environmental Research, and an educational body, the School of Global Environmental Studies. Further, a supporting organization for education and research, the Grove of Universal Learning, provides wider perspectives to both researchers and students with different disciplinary backgrounds so that they can develop their research and talents cooperatively.



Collaboration with other graduate schools, institutes and research centers of Kyoto University and other organizations

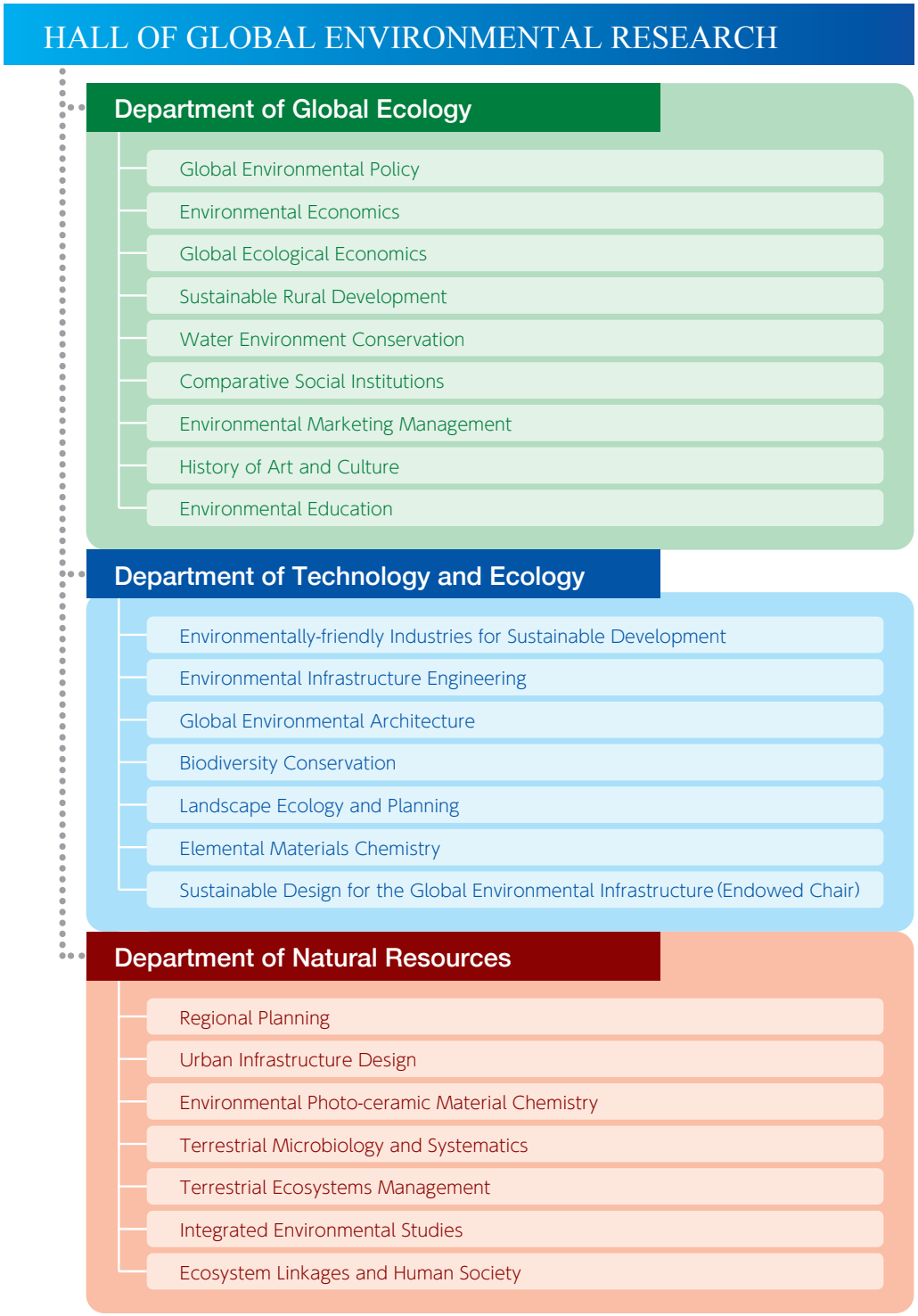
The Graduate School of Global Environmental Studies collaborates with many other graduate schools, institutes and research centers of Kyoto University to conduct interdisciplinary study and education that link other academic fields with global environmental studies. In order to facilitate such support, the Graduate School has invited professors from other faculties of the university as collaborating professors. They not only teach and conduct research at their home institutions, but also, at the request of students of the Graduate School, they provide lectures and guide research and thesis-writing for master's and doctoral degrees. The Graduate School also invites visiting professors and lecturers from institutions within Japan and abroad to speak on current topics. The educational programs emphasize formal instruction as well as collaboration with domestic and international NPOs and NGOs to give students opportunities for internship study and field experience in various sectors.

Carrying out university-wide research projects

In order to open up new areas of research in global environmental studies that are substantially different from those of the traditional sciences, it is necessary for professors of the Graduate School to promote university-wide research projects with the intensive collaboration of researchers from different areas. The Graduate School promotes and actively participates in these research projects.

Hall of Global Environmental Research (Research Body)

This organization includes three types of faculty: permanent professors, professors on double appointments, and collaborating professors. Double-appointment professors teach and conduct research both at their home schools, institutes or the various research centers of Kyoto University, and at the Graduate School. They hold professorships at two institutions within Kyoto University for a limited term. Collaborating professors are professors who teach and conduct their research not only at the institution within Kyoto University to which they have been appointed, but also at the Graduate School. These three types of faculty, together with visiting professors, explore global environmental issues and develop advanced technologies related to global environmental problems. Predicated on the desire to achieve global benefits, ecological conservation and recycling of natural resources, the Hall of Global Environmental Research is composed of three research groups, the departments of Global Ecology, Technology and Ecology, and Natural Resources.



Department of Global Ecology

In the global society of the 21st century, human socio-economic activities and the natural environment are increasingly interdependent, and international relationships to support the advancement of science and technology, economic development and environmental preservation are strengthening.

With these trends in mind, the Department of Global Ecology seeks to promote scientific contributions by (1) studying the framework of human and environmental symbiosis, (2) integrating existing natural and social science disciplines into the new discipline of global ecology, (3) developing policies and techniques aimed at serving common global interests that transcend national and international economic interests, and (4) conducting studies which can contribute to governance that can enlarge management capabilities for the global environment.

Global Environmental Policy／Environmental Economics／Global Ecological Economics／Sustainable Rural Development／
Water Environment Conservation／Comparative Social Institutions／
Environmental Marketing Management／History of Art and Culture／
Environmental Education

Global Environmental Policy

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From local waste problems to anthropogenic climate change, various forms of environmental degradation need to be addressed by public, private, and civil society sectors. To fulfil this need, local and national governments, as well as international organizations, have enacted and implemented policies; companies have taken measures; and environmental nongovernmental organizations and individual activists have engaged in advocacy. All of them are included in the range of study by our laboratory. We conduct research on environmental policies, citizens' behaviors, and sustainable businesses at local, national, and global levels. The social scientific methods we use include both quantitative statistical techniques and qualitative case study approaches.

Research topics covered by the laboratory include but are not limited to:

- process and effect of environmental policy
- environmental politics, law, and governance
- climate change mitigation and adaptation
- environmental awareness and behavior of citizens, ethical consumption
- climate justice activism
- energy transition, energy justice
- disaster risk management, disaster resilience
- sustainable business

Environmental Economics

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The main cause of environmental issues is the economic activity of human beings. Therefore, it is critical to understand the principles of firms' and households' behavior when tackling the issues and proposing effective interventions. Our laboratory frames environmental issues from an economic perspective and considers how to design better policies.

【1】 The Environment and Development

Is it possible to protect the environment while achieving economic development? This entails a fundamental inquiry that must be answered in order to attain sustainable development. Our laboratory addresses this topic by using field surveys and econometric analysis of micro-level data.

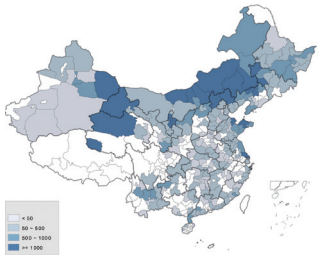
Field survey on cooking fuel use in Ghana

【2】 Economics of Waste

Market goods are produced, consumed, and eventually disposed of into the environment. Economics mainly focuses on the production and consumption stages and pays less attention to the disposal stage. Can economic instruments help to reduce waste and promote recycling? To answer this question, painstaking data collection and sophisticated causal inference are indispensable.

【3】 Valuing the Environment

The value of the environment is often omitted in the market economy. The question then arises if it even possible to evaluate the environment in monetary terms. Our laboratory employs stated preference and revealed preference approaches to tackle this conundrum.



Distribution of wind power CDM projects in China

Global Ecological Economics

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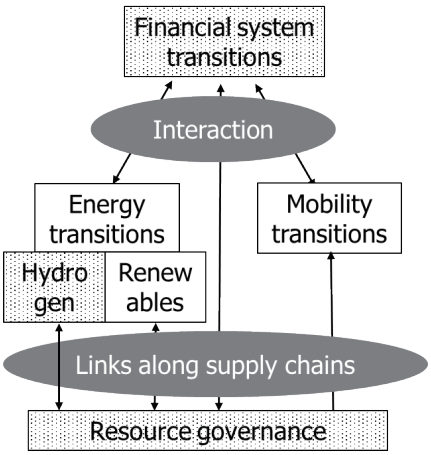
The 30 years of developments in environmental economics and policy studies prove it indispensable to go beyond implementing policy instruments and technical measures to advance sustainability transition. Sustainability transitions require overcoming technological, institutional, infrastructural, and behavioral lock-ins and accelerating **sustainable business model innovations** in industries and businesses.

Global Ecological Economics or **Team Sustainability Transitions** in Kyoto University is advancing sustainability transitions research in energy, finance, mobility, and resource systems individually, and their interactions from political-economic and business management perspectives, as in the figure. The team identifies socio-technical regimes, particularly incumbents and innovators to explore how technological business model innovations, institutional and infrastructural developments, and their interactions overcome the lock-ins to advance sustainability transitions, particularly toward net zero GHG emissions. The team has developed international research collaborations in Asia and Europe to advance this research.

Our team also analyzes the impacts of **China's Belt and Road Initiative** on Southeast, South, and East Asia from sustainability transition perspective.



Multiple system transitions toward net zero along supply chains

Sustainable Rural Development

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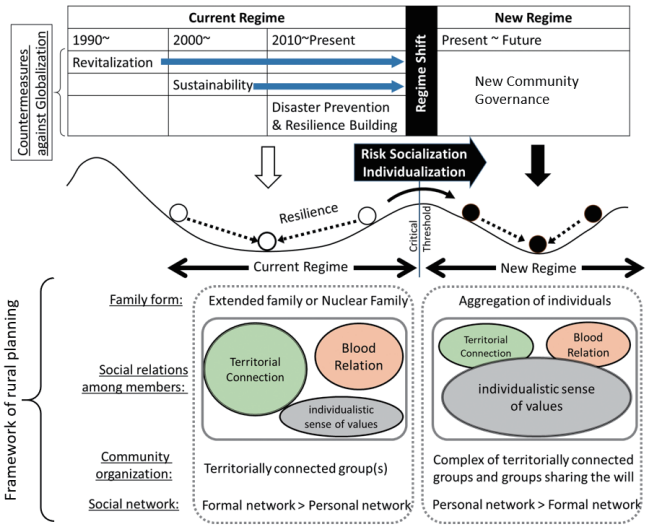
Rural sustainability (RS) was traditionally maintained by preserving harmony within a geographically limited frame. This type of harmony was maintained by five components, as shown in the figure on the right. Because all of these components are associated with regional characteristics, rural sustainability also involves characteristics that are unique to each region.

In recent years, however, the declining and aging population, economic globalization, climate change and excessive human-induced development have brought about changes in those five components. As a result, rural regions are now facing various challenges and this, in turn, is significantly impairing rural sustainability.

Working from a rural planning perspective, the Laboratory of Sustainable Rural Development is designing and evaluating measures and policies in an attempt to offer solutions to these challenges and to rebuild region-specific rural sustainability that can extend into the future. Our research concerns cover a wide range of topics including regional resource management by way of knowledge management, restoration of social capital (SC) and regional revitalization, symbiosis between residential environments and wildlife, regional development through regional informatization, the establishment of resident-led community planning theory, and proposals on how to carry out regional realignment and social infrastructure development in a society with a declining population.



Rural Planning for Resilience Building and Regime Shift

Water Environment Conservation

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In order to create a healthy water environment and create a sustainable region at the same time, it is necessary to appropriately and efficiently treat hazardous substances contained in wastewater and waste generated by human activities in river basins. It is also necessary to build a sustainable water management system that integrates the economy, society, and environment to create added value by recovering resources and energy. There are also expectations for the construction of a recycling social system of the future that takes climate change into consideration in addition to the linkage of water, energy, and food, which are essential resources for human survival.

In this field, we will conduct field surveys to evaluate the current state of the water environment and clarify the pollution mechanisms, as well as develop new water treatment systems that create value from domestic and agricultural wastewater, which is a pollutant load. In carrying out research, we would like to emphasize collaboration with other fields such as agriculture, fisheries, and regional studies, as well as collaboration between industry, government, and academia, and place importance on both the deepening of the theory of water environment conservation as an academic field and its implementation in the region. Examples of specific research themes are as follows.

1) Research on current assessment of water pollution caused by trace harmful substances and technology for countermeasures
2) Research on technology for reducing greenhouse gas emissions from sewage treatment facilities

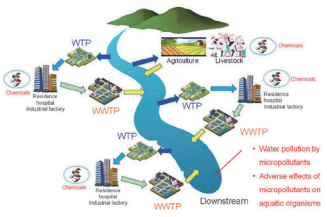

Fig.1 Water pollution by trace harmful substances

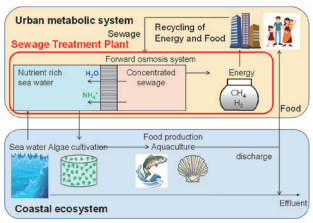

Fig.2 Recycling-oriented energy and food production system that integrates urban metabolic systems and coastal ecosystems

3) Research on building a recycling-oriented energy and food production system that integrates urban metabolic systems and coastal ecosystems
4) Research on a cascade-type hydroponics system that contributes to low-carbon greenhouse horticulture and resource recycling

This field is in collaboration with the Water Quality Engineering laboratory, Department of Environmental Engineering, Graduate School of Engineering, Kyoto University. We conduct research activities together with graduate students of the Graduate School of Engineering at the Katsura Campus, Kyoto University.

Comparative Social Institutions

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In order to address social problems including environmental problems properly, it is indispensable to have a precise understanding of the institutions and processes of government where public discussion and decision-making on these problems take place. With this in mind, this laboratory focuses on the institutions and processes of the judiciary in particular and aims to analyze and elucidate its actual dynamics and potential as well as its limitations and challenges as a governing body.

In conducting research, this laboratory takes comparative approaches, particularly a comparison between the Japanese and the U.S. judiciaries. While the former is reluctant to judicial policymaking in general, the latter is more engaged in and influential on public policymaking. Through their comparison, the laboratory explores the potential, limitations and challenges of contemporary judiciary from multiple perspectives.

This laboratory also takes interdisciplinary approaches in the analysis, drawing on the theories and methodologies of the fields of constitutional law, judicial politics, and socio-legal studies. Unlike the U.S., where judicial politics is a well-established field of political science, in Japan judicial politics scholarship is still in its formative stages. Through conducting above-mentioned research, this laboratory also intends to contribute to the establishment of judicial politics scholarship in Japan.

The White House

The United States Supreme Court Building

Environmental Marketing Management

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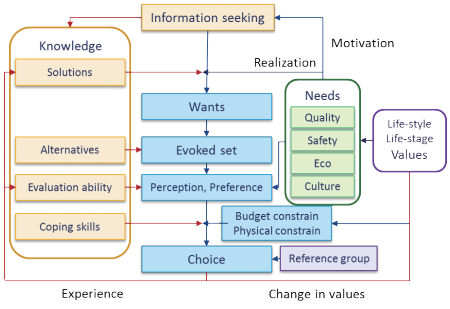
To achieve a more sustainable society beyond "negative externality" problems, all members of society must internalize the value of harmonizing with the environment. Can enterprises cover the costs with the returns from their pro-environmental activities? Is there a high probability that they can gain the support of consumers? We are addressing the following themes mainly on the Japanese market:

- Corporate market strategy based on pro-environmental activities: differentiation strategy, defensive strategy, and brand strategy beyond CSR
- Environmental communication between corporation and consumer: environmental labels, environment management system certification, and environmental risk communication
- Consumers' perceptions and behavior in relation to environmental issues: consumer segmentation, analysis of consumer behavior
- Pro-environmental agriculture: activities and management, market analysis, and consumer behavior
- Food risk communication: theories, analysis of consumers' risk perception and risk-averse behavior, and evaluation of food safety policies

Pro-environmental agricultural practices: the fish cradle project in Shiga prefecture, Japan



A model of consumer behavior in selecting pro-environmental products

History of Art and Culture

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The purpose of this research field is to gain a better understanding of the various aspects associated with the creation and reception of art works in a historical context, focusing on the modern era in Japan, and to attempt to clarify the historical significance of artworks and their relationship with the inner lives of individuals and society.

Our aims are:

(1) To examine the relationship between the influence of tradition and other cultures on the process of creating works of art and plastic expression, for example, the problems of coexistence, fusion, and conflict between Western aesthetic values and Japanese aesthetic consciousness.

(2) To clarify how art has attempted to express nature and society in the modern world, in terms of historical tradition and its innovation.

(3) To investigate how art has been accepted in the social environment.

In modern Japan, where the social and natural environment surrounding human beings has changed drastically, not only the works of art themselves but also the places where they are received have had to change as well. Each work of art inherits the tradition of art, and in the midst of changing times and changing trends in society, it sometimes acquires an unexpected and innovative expression, affecting both society and individuals. We believe that it is important to listen to the voices of the artworks and clarify their historical position and meaning in order to pass on their full value and significance to future generations.

《内国勧業博覧会美術館之図》三代歌川広重筆　明治10（出典：『目でみる120年』東京国立博物館、1992）

Environmental Education

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Research and educational activities in this laboratory are broadly organized around the two themes of: 1) The governance of energy and sustainability transitions, and 2) educational approaches towards climate change and disaster preparedness. Students in our lab, through research, internships and education learn about original research methods and practical strategies to build a just and sustainable society, transform behaviors and socio-technical systems,

Research on the governance of energy and sustainability transitions focuses on examining how different governance strategies like public policy, laws, industry rules and business models can accelerate the production and diffusion of clean technologies and the transition towards a sustainable society. The principal approach is to combine data-driven, empirical research with theoretical frameworks inspired by different fields such as public policy, sustainability transitions, innovation management, political science, economics and human geography.

The second research focus of the lab is on climate change adaptation as well as disaster preparedness and resilience. Work in this area includes projects on climate change education and adaptation, new approaches to sustainable lifestyles, social transformation, and behavior change, as well as disaster preparedness and resilience. Projects mainly focus on fieldwork in Japan, Europe, and the South Pacific (including Australia and NZ).

Energy Transition

Sustainability and Climate

Disaster Preparedness

Department of Technology and Ecology

A delicate balance between nature and humanity has emerged as part of the global system through the interaction between nature and human culture. Human culture, as well as human life, cannot be maintained without sustaining such a balance. In order to position global environmental studies as a fundamental science relating to the topic of human existence, we try to integrate environmentally friendly technologies across disciplines and develop technologies and technological criteria appropriate for an environmentally balanced civilization.

Environmentally-friendly Industries for Sustainable Development／Environmental Infrastructure Engineering／
Global Environmental Architecture／Biodiversity Conservation／Landscape Ecology and Planning／
Elemental Materials Chemistry

Environmentally-friendly Industries for Sustainable Development

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Japan overcame severe problems with environmental pollution in the 1960s and 70s and became one of the world's most environmentally advanced countries. During this process, Japan accumulated vast amounts of knowledge, skills and experience in the practical solution of environmental problems. This includes environmental technologies, legal systems and environmental policies. On the other hand, most developing countries in Asia are still suffering from serious environmental problems and our experience has not yet been fully utilized by these countries. This is mainly due to the lack of international education systems suitable for transferring environmental technologies and the lack of practical training in solving real environmental problems in Japan. Industries should be environmentally friendly in order to achieve the sustainable development of a global civilization. Such industries should promote resource recycling and energy saving, and avoid the use of hazardous substances.

In this laboratory, we conduct basic and applied research contributing to real-world environmental policies, and foster environmental leaders who will have the ability to solve environmental problems. Conservation and management of aquatic environments, improvement of water infrastructure, promotion of resource recycling, development of energy-saving industries, and analysis of solutions to water sanitation issues in Japan and abroad are all topics being studied using various tools, such as water quality analysis, micro-pollutant analysis, and water and micro-pollutant treatment technologies and mathematical modeling.

Field survey on water quality in Kathmandu

Analysis of micropollutants with a liquid chromatography mass spectrometer

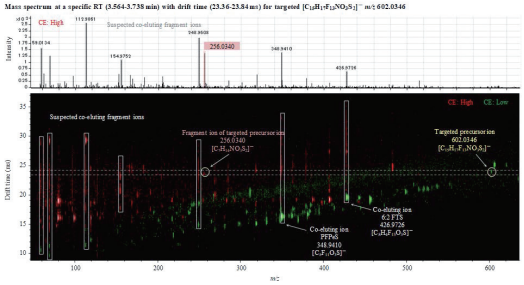

Fig. 5.6 The mass spectrum at a specific RT with drift time for targeted $[C_8H_2F_{13}NO_5S_2]^-$ (m/z 602.0346) in a groundwater sample (GS)

Identification of unknown micropollutants by ion mobility mass spectrometry

Environmental Infrastructure Engineering

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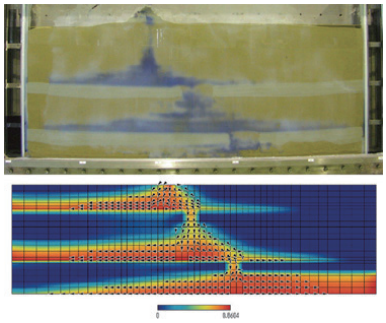
The Environmental Infrastructure Engineering group deals with construction and management of sustainable and environmentally-friendly infrastructures, and mainly focuses on the preservation and restoration of the geo-environment. With particular attention to the promotion of a recycling-based society, we make emphasis on the study of: 1) strategies and technologies for the appropriate reuse and disposal of waste materials, including contaminated soils, excavated rocks, and disaster debris, 2) the design, management, and post-closure applications of coastal and inland waste disposal landfill sites, with a particular interest on the performance of liner and cover systems and, 3) the development and assessment of remediation techniques for ground contamination, mainly focused on the behavior of heavy metals and non-aqueous phase liquids (NAPLs) in soils. We perform both practical (on a laboratory setting) as well as theoretical work (using numerical models), and closely collaborate with national and private institutions that are responsible for the preservation of the geo-environment.

As members of a society that aims for a sustainable development, we hope that our work will help improve the frameworks and technologies that will allow us to safeguard the infrastructure and social systems for future generations, even under the straining effects of climate change.



Spread of a Non-Aqueous Phase Liquid in the ground

Site investigation at a waste landfill site

Global Environmental Architecture

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The research explores "sustainable human environment in modern societies" based on local culture and natural settings. Learning from sustainable urban and rural settings, seeks to understand the global environmental order in all forms. The findings and experiences are realized into planning and design, and implementation of practical applications for societies..

Locally-based building technology

We create the environmental/social design for practical applications in order to restructure/sustain the living environment in modern contexts.

Architectural project aiming at achieving environmental harmony

Reconstruction management of vernacular architecture and indigenous technology

Locally-based human settlement

We explore the knowledge and methods for preferred human environment by the field surveys in eco-friendly rural villages and old historic quarters.

Field surveys of living environments in urban and rural areas

Field surveys of environmental adaptation in disaster-prone areas

Biodiversity Conservation

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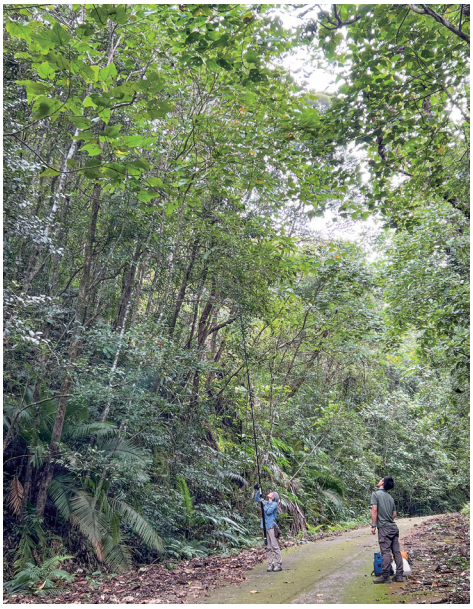
Stable global environment is based on ecosystem that comprises a large number of biological species, abiotic environment and their complicated mutual interaction. Among them, biodiversity conservation is one of the essential points to keep the environment. "Biodiversity" denotes variation at the species level, the genetic level and the ecosystem level. We are interested in biodiversity of plant and animal species and contribute into training personnel who work to promote the conservation in domestic and/or international organizations and administrations.

Field survey of animals in Kazakhstan



Field survey of plants in Malaysia

Landscape Ecology and Planning

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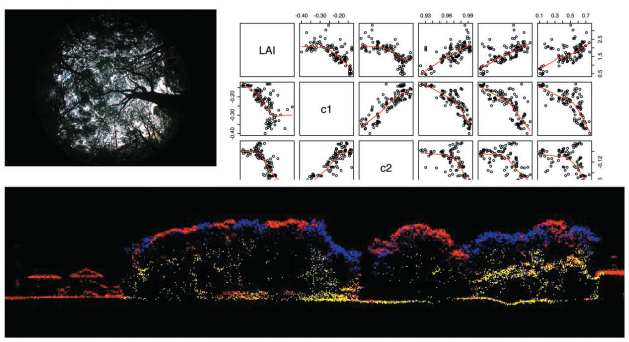
The goals of our laboratory can be summarized as:

1) Protecting natural areas, including endangered wildlife habitats.
2) Restoring degraded natural habitats.
3) Planning and managing sustainable landscapes.

The scope of our research covers a variety of scales, ranging from local scales such as gardens and parks to broad scales such as cities, *Satoyama* and national lands. We deal with the landscape ecology of both heavily populated areas as well as relatively unpopulated natural areas in order to propose better solutions to land use conflicts between man and nature.

Recognizing that we cannot stand apart from nature, and that ecological sustainability may not be achieved without corresponding cultural sustainability, our current areas of concern include landscape planning, design and management that takes wildlife habitats into consideration, and the development of suitable methods for ecological mitigation carried out as part of the environmental assessment process.

Cultural landscape: an important aspect of landscape planning



Ecological monitoring by remote sensing

Elemental Materials Chemistry

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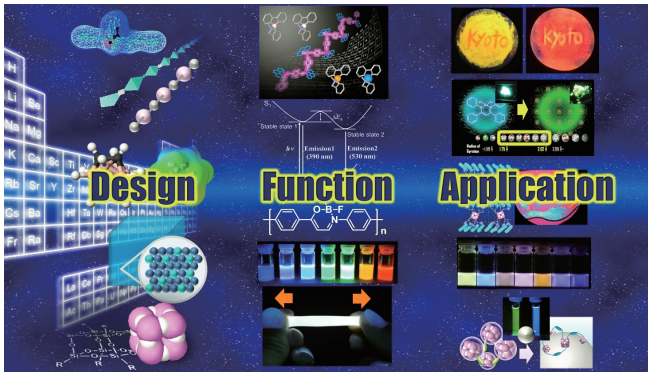
Polymer materials have a wide range of applications today, from everyday objects to automobiles and aircraft, and in optical, electron, and other cutting edge devices. Still, only a handful of elements, such as carbon, hydrogen, and oxygen, are available to make up polymers. If we can understand the characteristics of many other elements and use them at will, we can expect not only to increase the functionality of existing materials but also to create novel properties and materials based on them. Also on the horizon is the possibility of designing materials from scratch—which will be truly momentous as new materials can only be made by chance now—discovering phenomena that cannot be explained by existing frameworks, and elucidating their principles. With this in mind, we set for ourselves the goal of discovering new "faces" of elements by using such tools as "element-blocks," the minimum unit of functionality composed of various elements, "inorganic polymers" and "organic-inorganic polymer hybrids," in which organic and inorganic components are dispersed at a scale of nanometers, and "composite materials," which arrange inorganic components within polymers according to a given program to have functions present themselves. We are also working to create materials with new functions thus developed to bring them to market.

Selected research topics

- New functionality created by stabilizing “instability”
- Development of a “periodic table of excited elements”
- “Biomimetics,” a novel concept of designing bioceramics
- Establishment of a technique for designing luminescent chromism materials from scratch based on “complexes in the excited state”
- Establishment of a technique for designing “minuscule” near-infrared emitting dyes and development of tailor-made materials



Department of Natural Resources

The Department of Natural Resources considers the global ecosystem to be a complex composed of nature and human society and seeks to avoid environmental destruction by conducting dynamic analyses of resource circulation on both a global scale and within regional ecosystems. Our research and educational approaches are, therefore, built on both global and regional perspectives, based on the idea that natural resource management must conform with a well-designed human lifestyle on a local scale that, in turn, contributes to the conservation of the larger ecosystem and ultimately that of the global environment. Topics that receive particular attention include the environment-friendly utilization of organic resources, technologies for low-impact material conversion and recycling, and the proper management of land and water resources. Field-based studies of geospheres, biospheres, coastal zones and watersheds also play a key role in identifying resource circulation issues in such regional units and suggesting solutions for sustainable development and environmental conservation that can be carried out on both a local and a global scale.

Regional Planning／Urban Infrastructure Design／Environmental Photo-ceramic Material Chemistry／
Terrestrial Microbiology and Systematics／Terrestrial Ecosystems Management／Integrated Environmental Studies／
Ecosystem Linkages and Human Society

Regional Planning

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The Laboratory of Regional Planning (LRP) has been conducting studies on well-balanced regional developments in urban–rural areas, which are based on appropriate evaluation and utilization of regional resources. “Regional Resource” is a significant keyword in research activities associated with the LRP, and encompasses the human, cultural, historical, and natural resources that have existed in a particular region for a long time. Members of the LRP have been intending to solve social problems through intensive field surveys complemented by GIS and remote sensing technologies to maximize the utilization of “Regional Resources”. In many cases, members of the LRP work with stakeholders (academically addressed as co-design and co-production); subsequently, they try to associate the results and findings of the study with responses of societal challenges. The current study topics are as follows:

Rural revitalization via a transdisciplinary approach (rural areas in Japan); land and regional resource management and regional resilience (Vietnam); rural studies for sustainable development (Indonesia, Philippines, India, etc.); traditional water management systems for climate change adaptation (India); study of inclusive agri-food systems transformation to strengthen marginal farmers’ resilience (Indonesia); cultural landscape evaluation and sustainable development (India); and spatial data mining of local statistical data for regional planning.

A seminar held by the LRP for sharing the results of the regional studies with researchers at the Hue University of Agriculture and Forestry, Vietnam

Regional resource management by working with local people (winter flooding paddy field)

Urban Infrastructure Design

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We study the urban and regional landscape, from nature to culture, by analyzing its spatial and temporal structure and transformation based on landscape analysis, design surveys, historical analysis, and community structure analysis. Furthermore, we explore how to design urban infrastructures that are in harmony with the cultural environment, and also study the goals and methodologies of urban and regional planning and design.

1) Landscape Analysis and Planning

We study hilly and mountainous landscapes, and landscapes with rivers and waterways that have formed a favorable environment and influenced the development of human culture. Specifically, we use GIS and CG systems to analyze topography, carry out site analysis, and examine view characteristics. Through this, we explore various normative landscape design methods and different ways of ensuring sustainable landscape management.

2) Landscape Conservation and Regeneration, Urban and Regional Design

We study the characteristics of urban and regional landscapes by focusing on their formation processes, relevant factors, and relationships with infrastructure. The specific targets are mainly cultural landscapes and infrastructures such as parks and green spaces. In addition, we study the possibilities of urban and regional design by evaluating the social structures that make up the landscape and examining the mechanisms of sustainability and transformation of landscape formation systems.

3) Roles of Social Networks in Cities and Regions

We study the formation and function of the social networks (the connections between people in a community), including during extraordinary times such as disasters. Using a variety of methods such as fieldwork and mathematical modeling, we explore the nature of social infrastructure and sustainable societies, taking social networks into account.

Urban public space renovation and its design study

Environmental Photo-ceramic Material Chemistry

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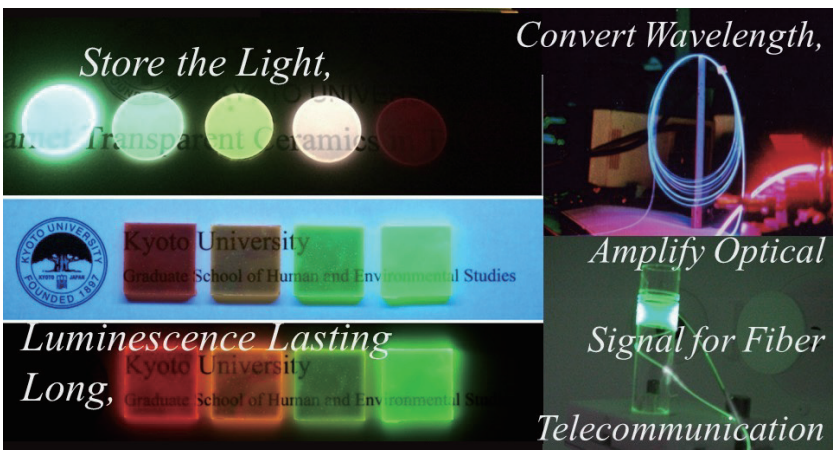
We are developing inorganic ceramic and glass materials which contribute to next-generation photonic technologies that enable eco-friendly technology by utilizing functions of light. The material design and fabrication of these photonic materials are conducted through characterization of their optical properties, leading to the development of light-storing materials, wavelength-converting materials that enhance the efficiency of solar-cells, optical amplifying glasses enabling long-distance telecommunication, and infrared-to-visible wavelength upconversion materials.



Terrestrial Microbiology and Systematics

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Many microbes live in agricultural and forest ecosystems, and are interacting with plants and other organisms. Some of these microbes are parasitic to the plants bringing severe damages to the hosts, and some other microbes are mutualistic bringing benefits to the hosts. We are studying on these microbes and the nature of interactions between the microbes and their biotic and abiotic environments to develop new approaches for plant protection and its health. Our current interests are:

- Fungal systematics.
- Studies on physiology and ecology of plant pathogens and symbionts.
- Molecular analyses of the fungal specific characters in parasitism and symbiosis (hyphal development, spore morphogenesis, colonization and penetration on/to solid substrates).

Field research on mycoflora and plant diseases in Yunnan Province, P. R. China.

An exotic fungal symbiont (*Amanita muscaria*) in New Zealand and its mycorrhiza with an endemic beech tree (*Fuscospora solandri*).

Terrestrial Ecosystems Management

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Our continued existence depends heavily upon terrestrial ecosystems that include air, water, soils, plants and animals. We also influence the functioning of terrestrial ecosystems and act as one of the components. The recent increase in human activities adversely affects ecosystems and the environment at both the local and global levels, in the form of desertification, water and soil pollution and land degradation.

Our laboratory is engaged in a broad range of studies on terrestrial ecosystems management. The study topics include soil characterization, fertility mechanisms and maintenance, the utilization and conservation of soil resources, the mechanism of soil degradation and its remediation, and the reappraisal of indigenous agro-ecosystems management techniques in the humid and semi-arid tropics. We also study holistic approaches to rural development and ecosystems management that can be used to enhance human welfare and security in Japan, Asia and Africa.

Clear-cutting of tropical lowland forest in Indonesia

Revitalization of resource recycling using underutilized resources including human waste (Malawi)

Integrated Environmental Studies

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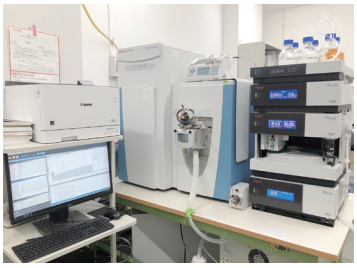
The Laboratory of Integrated Environmental Studies was launched to facilitate interdisciplinary and integrative research activities in environmental studies. Given the multitude of specialized fields that the Graduate School of Global Environmental Studies (GSGES) encompasses, this research laboratory covers all aspects of global environmental studies and carries out research projects on specific topics in collaboration with other GSGES laboratories, thus promoting research work for the GSGES at large. Specific research topics include: solutions for sustainable regional development and global environmental conservation by way of dynamic analyses of resource circulation on both a global scale and within regional ecosystems; the framework of human and environmental symbiosis; policies and techniques aimed at serving common global interests; and technologies and technological criteria appropriate for an environmentally balanced civilization. These individual research initiatives contribute to the promotion of studies at the Department of Natural Resources, Department of Global Ecology, and Department of Technology and Ecology.

International Negotiation on climate change (COP24, Poland)



Analysis of raphidophytes with a liquid chromatography mass spectrometry

Raphidophytes occurring in sources of drinking water

Ecosystem Linkages and Human Society

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This laboratory is a cooperative laboratory in the Field Science Education Research Center (FSERC) of Kyoto University. Based on the new concept of "the Connectivity of Hills, Humans, and Oceans (CoHHO)," the FSERC proposes an integrated academic field to clarify interactions among forest, river, human, and coastal ecosystems.

Connectivity of hills, humans, and oceans

We examine the ecological links between forest, river, human, and coastal ecosystems, and the impacts of human activities on terrestrial and coastal productivity. These concepts are then used to identify suitable methods for ecosystem management in order to achieve future sustainable development.

Ecosystem ecology

We study interactions between living (biotic) and non-living (abiotic) components based on material cycling within an ecosystem and with external ecosystems.

Ecology of aquatic organisms

We study production systems of aquatic biological resources, focusing on energy flow from nutrition and primary production through to macrobenthos and fish, emphasizing the life history, survival, growth, movement, and feeding characteristics of key species.

The connectivity between forest and river ecosystems (left), and the bounty of the forest (upper right) and coast (lower right).

Biodiversity conservation: An urgent challenge that must not be avoided

Professor NISHIKAWA Kanto
Biodiversity Conservation

Biodiversity

All life on Earth owes its existence to its interactions with other organisms as a component of a complex ecosystem. The fundamental units of ecosystems are species. Within each species, there is genetic diversity, and interactions among species are also diverse. Collectively, this is called biodiversity. The true state of biodiversity remains far from being elucidated. Every day, a new species of one organism or another is discovered, and new ecological relationships, genetic traits, and other facts are identified. For example, in my field of amphibian taxonomy, discoveries of around 180 new species are still being reported every year. This means that a new species is found every other day. Many more species are being described on a daily basis for insects and other groups of organisms with higher species diversity.

The term *biodiversity* has been widely known since the Convention on Biological Diversity was opened for signature at the 1992 United Nations Conference on Environment and Development, and we are now encountering it more often in newspapers and other media. However, I think that people do not yet fully understand what biodiversity is. With a focus on the term *biodiversity*, the biodiversity conservation field engages in the study of various organisms, ranging from plants and animals, to elucidate the true state of their biodiversity. It has also been working to spread that knowledge to the public through various initiatives.

Biodiversity conservation and human society

Today, biodiversity on Earth is steadily declining, and there are fears that it could be catastrophic if this trend continues. I mentioned that a new amphibian species is found every other day, but this just means that there are many species that humans were not previously aware of, not that the number of species on Earth is increasing. This is because the emergence of a species could take tens of thousands to millions of years. On the other hand, it is said that 100 or more species are becoming extinct every day. The speed of extinction today is hundreds of times faster than during the Jurassic period, and humans are believed to be involved in causing many of these modern-day extinctions. It is therefore evident that humans are triggering mass extinction on an unprecedented scale without even being able to grasp the full picture of biodiversity.

We owe our lifestyles to the benefits provided by ecosystem services, which are supported by Earth's biodiversity. This fact, however, is not widely recognized. According to estimates by the World Economic Forum, around 44 trillion dollars or more—at least half of the global GDP today—is potentially exposed to risks from biodiversity loss. This is the second largest risk following climate change. In light of the impact on future generations, the conservation of biodiversity is an urgent challenge that we must tackle right now.

Our goals

Amid this biodiversity conservation crisis, it is critical to train people who can press forward with biodiversity research, which is the foundation for all other efforts. In addition to providing training in such basic research, it is important to foster people who can thoroughly understand the problems in the global environment and biodiversity conservation, adapt to and blend in with local communities, and work toward the resolution of problems. With this in mind, the field is engaged in promoting basic research while also pursuing applied research. It also conducts various other types of research with a view to contributing to society.

Designing rich and beautiful rural spaces adapted to the era of population decline

Professor TAKEYAMA Emi
Sustainable Rural Development

Rural planning: Envisioning the future of rural areas

Rural planning is a new field of study that brings together various existing academic fields under its interdisciplinary umbrella. Within that field, I am engaged in rural planning grounded in agricultural civil engineering, an area that is characterized by its focus on the physical planning of individual components (objects), such as land and facilities, that together make up rural spaces.

The mission of rural planning is to unite the individual components of rural spaces and achieve overall optimization by defining what the individual components should look like while envisioning and formulating future plans for rural spaces, and then indicate the path that various agricultural civil engineering technologies should follow, as well as the state to be achieved (*sollen* in German). In today's increasingly complex and diverse society, rural planning, which shines light on that direction and state, has a critical role to play.

Spatial design and land use planning for rural fringe boundary control

I have dedicated my life to researching spatial design and land use planning that enables boundary control at the rural fringe, or the area between human and natural domains.

During periods of population increase when society was focused on developing the environment for human use, human space expanded while nature shrank. Japan and other developed countries, however, are now transitioning to a period of population decline with society focusing on conserving the environment. Along with this transition, abandoned farmland and untended forests have increased at the rural fringe, while an increasing number of hamlets are disappearing. As a result, critical functions that the rural fringe has provided, such as alleviating conflict with wild animals, preventing landslides, and recharging water resources, are also being lost.

These issues have motivated me to research design and planning for the creation of richer and more beautiful rural spaces amid population decline. This will be achieved through the development, deployment, use, and management of the land, infrastructure, facilities, and organisms that exist in rural spaces. To be more specific, I am researching how a locality's use of land, as well as their management of agricultural land and water, are affected by various factors, namely the establishment and revision of the legal framework on land use and the decline in the number of people engaged in managing agricultural land and agricultural water facilities. Based on this knowledge, I am working to determine the ideal agricultural land regime, the ideal techniques for agricultural land development, and the ideal management of agricultural water facilities. Turning to a different aspect, recent years have seen an increase in encounters between humans and wild animals. Not only are boars, deer, and other wild animals causing damage to crops, but they are also frequently entering residential and urban areas. I hope to resolve such conflict between humans and wild animals not by exterminating the animals but through resource management and land use planning by the local community. To that end, I am pursuing analyses from the perspectives of ecology, social science, and land use to develop science-based methods of devising solutions.

Spatial design and the development of land use plans for the rural fringe that take into account the shrinking of the human domain are future-looking areas of research in line with the ongoing population decline that humans are experiencing for the first time in history. The research can be described as a means of elucidating a new way of living in harmony with nature that a society focused on conserving the environment, rather than one focused on developing it for human use, can achieve by controlling the boundary between humans and nature.

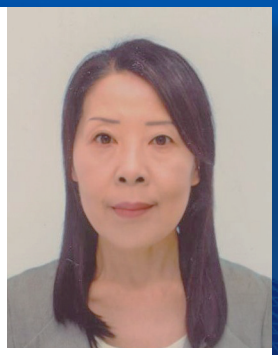
To those interested in rural planning

Rural planning is not an isolated field of study. It exists as a result of the integration of various knowledge areas and technologies. It is my hope that the students at the School of Global Environmental Studies will clearly define the ideal rural community and strive to illustrate a highly probable future as they engage in cross-disciplinary studies with fellow students of diverse backgrounds. This is a field in which you can excel, giving full play to your individuality and sensibilities. Join us in thinking about the future of rural communities.

Introducing the Faculty

Research on Art and Society in Modern Japan

Professor TAKASHINA Erika
History of Art and Culture



My current research focuses on the history of art and society mainly in modern Japan. This field of research considers the historical significance of works of art from various aspects surrounding their creation and reception. In detail, I use actual artworks as my research subjects to examine how history, society, and people are formatively expressed in art. The research considers the historical context by examining various works of art, materials, and literature to see what kind of environment the work was created in, the meaning and historical significance behind the artistic expression, the social environment it was received in, and how it influenced society.

Japanese Sense of Beauty and Encounter with the West

First of all, the research attempts to clarify the meaning and expression of a specific artwork by considering the historical context mainly in the 19th and 20th century Japan, an era in which Japan began full-fledged exchanges with the West. As new techniques and perspectives were introduced, the society swayed between modernization and Japan's traditional sense of beauty, which led to an upheaval of systems related to art and education. Through researching artworks created during this era of change, I want to examine how Japanese people perceived human and nature, their relationship to the landscape and various forms of life, and their love for nature. In this context, we will find that Japan's encounter with western culture led to a rich transformation in Japanese people's perception, way of expression, and their sense of beauty that had been cultivated up until the Edo period (1603-1868). Recent research on this topic includes a study of the Japanese exhibit and pavilion presented at the Paris International Exposition in 1937. At the exposition held in the nineteenth century, Japanese ceramics, lacquerware, embroidery, and fabrics were highly regarded by Europe and the United States as artworks with Japonisme style, while in the twentieth century, we see a decline in this trend. But at the 1937 exhibition, as France called upon Japan to create a form of artistic inspiration that maintained tradition while incorporating Western culture and technology, the Japanese pavilion structure above all, met these expectations, creating a new style of art.

Artworks and the Social Environment

Another aspect of my research themes is to study the relationship between art and society, focusing on changes in the social environment related to art during the modern era, including the production, distribution, and exhibition of art. After the Meiji Restoration in 1868, society was greatly influenced by the Western civilization which led to building art museums and exhibitions. I examine how art was disseminated to society, how it was accepted by people, and how these factors changed artists and their artworks. By clarifying the facts on the basis of documents, I consider, through the history, how art affects society and the human spirit. Recent research on this topic has been done in a study of the Ministry of Education's art exhibition in the early days and society. The exhibition held in 1907 was the first comprehensive art exhibit organized by the government, which also became a place for artists and sculptors to take on new challenges. I examine the relationship between art and society in the early twentieth century Japan, focusing on conditions surrounding the exhibit, their audience, how the media was involved and the trend among artists during this particular time in the history.

Exploring methods for urban and regional revitalization and landscape creation rooted in local natural conditions and culture

Associate Professor YAMAGUCHI Keita
Urban Infrastructure Design

Landscapes are the subject of my research, so with landscapes as the key, I am exploring the ideal urban and regional redevelopment strategies and designs for public spaces that are rooted in a region's unique nature, climate, history, and culture.

Landscapes comprise diverse objects and phenomena. Each region's natural climate, conditions, and geographic environment give rise to diverse societies and people who create urban infrastructure facilities and frameworks, such as urban planning. Landscapes are the outcomes of a complex combination of these regional factors. And each region has developed a unique history, characteristic culture, and local social system. To properly assess the structure of these landscapes, I take an empirical approach to elucidate the histories of cities and landscapes and the mechanisms of their formation, based on a long-term perspective.

At the same time, I seek to define the ideal method for assessing the meaning and value of landscapes, focusing on the people who view, form an awareness of, and become involved in those landscapes. With landscapes as the key, I am exploring measures for overcoming local challenges and for regional development that are based on people's creativity and intentions for the future. The three core topics of my research are as follows.

The history of urban landscape formation

I am pursuing research to understand the histories and the formation mechanisms of urban landscapes. Focusing primarily on social infrastructure development, urban planning, and landscape conservation measures in the modern era and beyond, my research will elucidate the detailed history of their formation and the impacts of the philosophies, regulatory frameworks, technologies, and other factors relating to landscape formation. Specifically, the philosophies behind the plans and the thinking of engineers of each period, as well as their impact on the formation of urban landscapes, are studied through surveys, collection, and analyses of relevant historical records. The realities of disaster planning and reconstruction are also discussed. In addition, the impact of regulatory frameworks related to landscapes is assessed and verified to consider how landscape formation should be pursued in the future.

I have conducted research on the formation of urban landscapes in Osaka, Kyoto, Kobe, Shiga, Nara, and other prefectures in the Kansai region. The outcomes have been acknowledged by multiple academic societies, and I have received various awards, including the Best Paper Award for Young Professionals from the Japan Society of Civil Engineers, the Architectural Institute of Japan Young Researcher Award, and the Best Paper Award from the City Planning Institute of Japan.

Urban and regional revitalization theory

I am also researching the utilization and sustainable management of local resources and what creative urban and regional strategies should look like with the aim of creating sustainable and attractive living spheres and life spaces. Specifically, I am examining how to utilize various regional resources, both natural and historical, in the revitalization of cities and local regions. These resources include underutilized public land and facilities, as well as vacant houses.

In addition, through field studies and design proposals, I am exploring how regional strategies should be drawn up and how landscapes that encompass city centers and infrastructure facilities should be formed. Also being pursued is the development of required technologies and the building of theories that can be put into actual practice. To date, I have collaborated with local governments in creating community development plans and visions for the future and have also engaged in practical initiatives, such as regional resource surveys.

Designing public spaces

The design of public spaces and social infrastructure, including roads, parks, and rivers, is another area of my research. In recent years in Japan and around the world, we have seen the creation of people-centric public spaces through road space reconstruction and the introduction of green infrastructure that contributes to environmental restoration and flood controls. Taking leading examples in Japan and other countries, I am pursuing comparative studies on their design methods and processes, as well as related government policies, projects, regulatory frameworks, and technologies.

I am also engaged in concrete action, including designing urban facilities and public spaces and examining landscapes to be formed. For example, I participated in a project to turn a road in Nakanoshima, Osaka, into a pedestrian space. Together with students from my lab and other people on a working level, I examined landscape designs and worked on the spatial design. The project won the Excellence Award in the Urban Space Category of the Urban Landscape Grand Prize.

In summary, I conduct research on a diverse range of topics, from the theoretical to the practical, so if this article has piqued your interest, please visit our lab's website at https://lepl.uee.kyoto-u.ac.jp/ (in Japanese).

Introducing the Laboratories

Department of Technology and Ecology, Environmental Infrastructure Engineering

—What kind of research are you doing?

The research we do in our laboratory addresses several geoenvironmental issues. Among our goals is to predict the behavior of contaminants in the ground, develop effective and economical countermeasures for ground contamination, recycle by-products generated by construction projects and industrial operations, analyze the effects of rising ground temperature rises on geotechnical phenomena, and create efficient separation methods for disaster wastes.

We have been researching soil-bentonite mixture (SB) cutoff walls for contaminant containment for more than 20 years. Bentonite, a clayey soil, can swell when it comes into contact with water. Due to the swelling of the bentonite in SB, the pores in the SB are filled, resulting in SB cutoff walls with high barrier performance. To improve the reliability of SB cutoff walls, we have studied their soundness against earthquakes, solute transport, self-healing property, and so on.

Additionally, we are conducting extensive research on excavated soils and rocks containing geogenic contaminants. Subterranean construction generates large volumes of soils and rocks. While geogenic contaminants are in relatively low concentrations in the excavated materials, the leaching concentrations of the toxic elements can slightly exceed the environmental standard values. Therefore, excavated soils and rocks should be effectively utilized considering the risks to the surrounding environment. Understanding the risk of contamination requires evaluating the leaching behavior of geogenic contaminants in excavated soil and rocks. For about 15 years now, our laboratory has been researching the leaching behavior of excavated soils and rocks. Our investigations aim to clarify the long-term leaching behavior of excavated soils and rocks which has yet to be fully understood. We explore various scenarios or geotechnical parameters (e.g., pore structure, saturation) that affect the leaching behavior of the materials.

—How do you run your laboratory?

Our laboratory is in charge of education in the Faculty of Engineering and the Graduate School of Engineering for civil engineering. Our activities are conducted together without distinction between the GSGES and the Engineering course. As of April 2023, the laboratory has six doctoral students, eleven master's students, and four undergraduate students. Five of the master's students are in the GSGES. Once a month, we hold a seminar to discuss the progress of our research activities.

—Tell us about the research your graduate students are doing.

Research in geoenvironmental engineering involves many experimentations. Soil is different depending on geology and location, so our research is difficult to generalize. Students are required to solve problems independently. Students need to be able to work with their hands, solve problems through trial and error, and confirm their results through repeating the experiments. For example, in our research on disaster waste recovery, we investigate how to efficiently separate soils from mixed disaster wastes and utilize the soils for construction. This will help reduce the amount of waste, as well as rapid restoration after a disaster. The students conducting this research were tasked to make their own experimental plans. They created simulated disaster waste by mixing wood and soil and conducted laboratory and on-site sieving tests. Their investigations showed that it is challenging to separate wood from the mixture if the mixture contains a large amount of fine-grained soil.

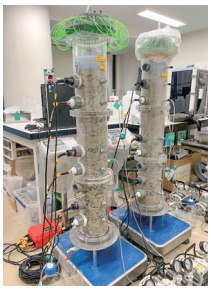
—Tell us what the atmosphere in the laboratory is like.

Students actively engage in research. Many students gather in the laboratory to conduct their experiments. Diversity is another important feature of our laboratory. The laboratory consists of Japanese and international students. Moreover, some doctoral students are working in Japanese construction companies while studying for their doctorate.

—What kind of areas do students move on to after they graduate from your laboratory?

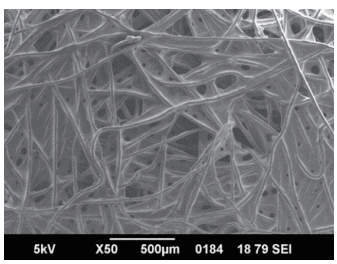
Many students join the construction and infrastructure industry after graduation. Some become civil servants, while others continue with their research at universities or national research institutes. We are pleased to see them working to create a sustainable future using their expertise and experience in geoenvironmental engineering.

Pilot-scale sieving tests for waste separation



Leaching tests for excavated soils and rocks

Site visit at a waste landfill



Microscopic observation

Department of Natural Resources, Urban Infrastructure Design

—What kind of laboratory is it?

With "landscape" as a key word, this laboratory conducts exploration and practical research through an engineering approach on landscape and urban design and related planning methods for urban facilities and public spaces, encompassing urban planning. During the post-war high-growth period of the Showa era (1926-1989), the rapid development of cities and national land, such as the construction of highways, and the widespread use of concrete and steel gave birth to free forms. At the same time, however, the shape of cities changed in an uncontrolled manner, and a research field arose within the field of civil engineering to consider how to construct and design facilities to beautify urban landscapes like those in developed countries. In the JSCE (Japan Society of Civil Engineers), there are several fields of activity such as civil engineering planning, landscape and urban design, and civil engineering history. Among these, the field of landscape design is a fusion research area that integrates the fields of architecture and landscape architecture with urban planning. In our laboratory, we have expanded the scope of our research not only to urban facilities, but also to the landscaping of entire cities, including open spaces such as gardens and plazas, as well as buildings such as train stations. This is because, to make a city beautiful, it is necessary to synthesize the many objects of which it consists. It is also necessary to consider not only the value of beauty, but also the social structure and usage of the city so that people can lead vibrant social lives and engage in cultural and economic activities. If we do not take into account people's vitality, local communities, and management, cities will decline. In view of the many challenges we face such as global environmental issues, population decline and the aging society, natural disasters, and infectious disease problems, research into the state of Japanese cities is a task whose goals should be pursued quickly within the span of long-term urban development.

—What kind of research do you do?

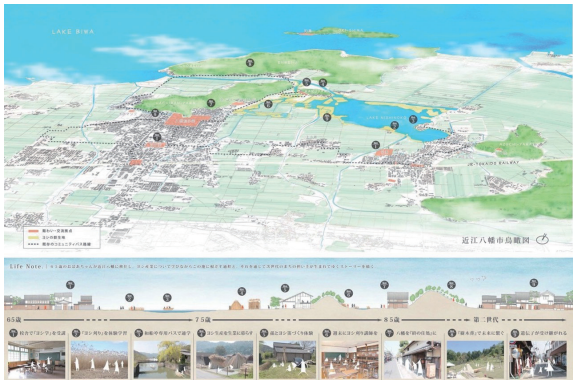
Basically, we explore the spatial and temporal structure of landscapes and the objectives of design and design methodologies to create cultural and beautiful landscapes. For example, we conduct research on the design process, management, form, and color of urban facilities and public spaces; research on natural mountain and river landscapes and urban vistas; and research on original landscapes and images expressed in literature. In particular, the mountainside and waterfront areas of Kyoto and its surrounding cities are a treasure trove of design, and we conduct topographical analysis and design surveys using graphic systems such as GIS (Geographic Information System) and CG (Computer Graphics) to carry out sophisticated research on spatial composition and design techniques. We are exploring spatial models, such as the maintenance of historical environments, from the historical background of their establishment, and attempting to reflect them in urban planning guidance and policy methods. We have also been studying the historical value of modern civil engineering heritage such as canals and streets. Furthermore, we have been conducting research on disaster and local community level issues by utilizing various methods such as social network analysis and fieldwork techniques.

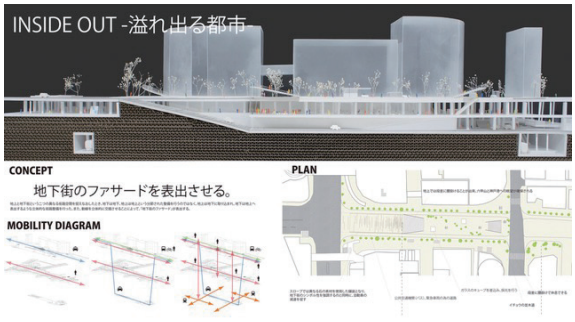
—How is the laboratory run?

There are 25 people in the entire laboratory, including the concurrently employed engineering students. There is one professor, one associate professor, one assistant professor, one secretary, three doctoral students, 12 master's students, five undergraduate students (Civil, Environmental and Resources Engineering), and one special auditing student (from France). Student residence rooms are located on the Katsura Campus, and practical design and exercise work is conducted in the laboratory. Our faculty offices are located on the Yoshida Campus.

—What kind of research are your graduate students doing?

Some graduate students continue their undergraduate research and develop it further in the master's program, while others take on new challenges. In each case, we emphasize the importance of students' own initiative and will. Many of our graduates are active in public construction think tanks, consulting and design firms, general contractors, and as national and local public officials. They work in a public service capacity for the vitality of the nation and cities, and society also expects them to be immediately effective. Therefore, we believe that analytical thinking alone is not enough to benefit the world, and we are pursuing our research with the aim of finding social issues on our own and cultivating the creativity to come up with comprehensive solutions to them.





School of Global Environmental Studies (Educational Body)

The School of Global Environmental Studies is composed of the "Doctoral Program in Global Environmental Studies," designed to foster outstanding researchers responsible for further development of the new field of global environmental studies, and the "Master's Program in Environmental Management" and "Doctoral Program in Environmental Management," both designed to train outstanding practitioners capable of addressing environmental issues from the local to the global level. The educational goals of these programs are shown in the following table.

Doctoral Program in Global Environmental Studies

This program fosters researchers who are capable of working at the international level by tackling global and local environmental issues using innovative approaches and methodologies drawn from various fundamental academic fields, as well as practitioners who have such academic quality.

Master's Program in Environmental Management

This program trains internationally-minded practitioners with the knowledge and practical skills required to tackle environmental problems from the local to the global level. This program also fosters researchers capable of working at the international level by addressing global and local environmental issues using approaches and methodologies drawn from various fundamental academic fields.

Doctoral Program in Environmental Management

This program fosters practitioners with advanced management expertise and the extensive knowledge and skills required to address environmental issues from the local to the global level, as well as researchers with such practical capabilities. This will enable them to make a practical contribution when working in international settings.

Students participating in any of the above programs may enroll in both compulsory and elective courses offered in English, in keeping with the Graduate School's aim to train professionals capable of working in an international setting. Students seeking to further their interdisciplinary knowledge base are also able to take credited lecture courses from other schools in Kyoto University.

Each program has two components, the general program and the"International Environmental Management Program (IEMP)".

Doctoral Program in Global Environmental Studies

This program accepts students who have obtained a master's degree or the equivalent in various fields. The program encompasses the Department of Global Ecology, the Department of Technology and Ecology, and the Department of Natural Resources of the Hall of Global Environmental Research, as well as Sansai Gakurin. Students' specialized study themes are selected from a vast range of themes related to global environmental studies, based on prior study and approaches available in the humanities and social sciences as well as in the areas of natural science, agriculture and engineering. After receiving a doctoral degree, students may work at universities or environment-related government/ private-sector research organizations.

1 Curriculum structure

In order to develop outstanding researchers, course guidance is provided, as needed, on subjects offered under the Master's Program in Environmental Management, focusing primarily on lectures and seminars.

An academic supervisor and a sub-supervisor are assigned to each student upon entry into the university, and the student receives interdisciplinary guidance.

2 Progress towards the degree

First year: Academic supervisor selected; research plan drafted, reviewed and presented; preliminary thesis report written; and enrollment in exercises and seminars.
Second year: Enrollment in exercises and seminars.
Third year: Second thesis report written; enrollment in exercises and seminars; submission, review and defense of a doctoral thesis; Doctoral Degree in Global Environmental Studies awarded to student.

The standard time taken to complete the program is three years. However, exceptional students may be able to complete the degree in less time.

3 Admission information

Applicants will be graded according to the sum total of their marks for English ability (evaluated on the basis of TOEFL iBT (preferred), TOEIC SP or IELTS test scores) and interview performance. The interview assessment includes a review of your proposed research(Specialized knowledge gained through your master's study or practical experience; contents of your proposed research plan presentation; any relevant knowledge about the research plan or related subjects).

Master's Program in Environmental Management

IEMP (International Environ-mental Management Program) Entrance Examination will be also implemented for highly capable international students.

In order to gain the skills needed to become outstanding environmental management professionals or environmental researchers, students are required to participate in a lengthy internship study. Based on practical experience gained outside of the university, students gain professional skills that will enable them to write an innovative master's thesis. After completing the master's degree, students may continue on to the doctoral program in order to obtain advanced professional and academic research skills or may choose to work for national or local government organizations, international organizations, environment-related departments of industries, environment-related industries, or environment-related NGOs, among others.

1 Curriculum structure

The core requirements of the Master's Program in Environmental Management are courses in the theoretical foundations of global environmental studies (Global Environmental Policy and Economics, Global Environmental Engineering, Management of Global Resources and Ecosystems, Environmental Ethics and Environmental Education). The student studies environmental management fundamentals and theories, and attends seminars corresponding to the student's area of interest. After that, the student completes an internship and then submits a master's thesis.

Students also attend environmental management seminars, which include special lectures by invited lecturers, fieldwork, experiments and practical study, and a literature review, all of which serve to instill in the student the fundamental knowledge and skills needed for environmental research or practice at the international level.

2 Internship study

An internship is a compulsory part of the curriculum of the Master's Program in Environmental Management. Individual education based on practical experience outside the classroom enables students to acquire competence in addressing global environmental issues. The Graduate School of Global Environmental Studies has arrangements with a wide range of domestic and international environmental research institutions and organizations that currently serve as hosts for internship training. Previously, students have been placed as interns at governmental research institutes, private research organizations, foreign universities, and international organizations such as the United Nations and international NGOs.

Two kinds of internship are available for students: Long-term internships, which require students to spend at least three months at one site in order to train and cultivate practical skills, and short-term internships of more than one month for students whose research objectives are best achieved through brief practical experience. (For short-term internships, the submission of preliminary mater's research report is required.)

3 Progress towards the degree

First Year: Course work, drafting of internship study plan, internship.

Second Year: Submission and review of master's thesis for the Master's Degree in Global Environmental Studies.

4 Admission information

Applicants will be graded according to the sum total of their marks for English ability (evaluated on the basis of TOEFL iBT (preferred), TOEIC SP, or IELTS test scores), and interview performance (including general knowledge of global environment, knowledge of the intended study area, research and study plans after admission, qualities and abilities required by the admission policy, and the contents of application documents), taking into account the application documents.

IEMP (International Environ-mental Management Program) Entrance Examination will be also implemented for highly capable international students.

5 Double Master's Degree Program

This program seeks to train/foster specialists who will have in-depth knowledge of global and regional environments and the practical skills necessary to solve environmental problems, and who are instilled with an international perspective. Students who successfully complete approved course work overseas at the partner university will gain transfer credit and earn two master's degrees in two different fields for three years.

Partner universities:
Mahidol University, Thailand IPB University, Indonesia
Tsinghua University, China

*Note for applicants from overseas

In keeping with the international focus of this Graduate School, we warmly welcome applications from overseas students to all our programs. International applicants to the Master's Program in Environmental Management should note, however, that some of the credited electives offered by the school may be taught only in Japanese. Applicants are strongly advised to consult with their intended academic supervisor for further information on what classes are available. International applicants should also note that while proficiency in Japanese is not a requirement for the Master's

Doctoral Program in Environmental Management

Program in Environmental Management, a degree of Japanese speaking, listening comprehension and reading ability may enrich their social and academic interactions during their study at the Graduate School.

This program aims to train professionals capable of functioning in an international setting by equipping them with the comprehensive knowledge and skills needed for resolving conflicts and managing global environmental issues. Internship study (domestic or overseas) and the preparation of a doctoral thesis help students develop the skills required for environment-related work after graduation. Graduates of the doctoral program are expected to find employment in national or local government, international organizations, environment-related departments of industries, environment-related industries, environmental NGOs, universities, or government/private-sector research organizations with an environmental focus, among others.

1 Curriculum structure

In order to cultivate outstanding environmental management practitioners and researchers, course guidance is provided, as needed, on subjects offered under the Master's Program in Environmental Management, focusing primarily on lectures and seminars. The student also completes an internship program lasting approximately six months, and then submits a doctoral thesis.

An academic supervisor and sub-supervisor are assigned to each student upon entry into the university, and the student receives interdisciplinary and practical guidance.

2 Internship study

An internship is a compulsory part of the curriculum of the Doctoral Program in Environmental Management. Individual education based on practical experience outside the classroom enables students to acquire competence in addressing global environmental issues.

The Graduate School of Global Environmental Studies has arrangements with a wide range of domestic and international environmental research institutions and organizations that currently serve as hosts for internship training. Previously, students have undertaken internships with governmental research institutes, private research organizations, foreign universities, and international organizations such as the United Nations and international NGOs. Doctoral students must spend at least five months training and cultivating practical skills at their internship sites. After returning to the Graduate School, students prepare their doctoral theses by drawing upon their experiences outside the classroom.

3 Progress towards the degree

First year: Academic supervisor selected; research plan drafted, reviewed and presented; preliminary thesis report written; preparation of an internship plan, and enrollment in exercises and seminars.
Second year: Internship
Third year: Second thesis report written; enrollment in exercises and seminars; submission, review and defense of a doctoral thesis.

Doctoral Degree in Global Environmental Studies awarded to student.

The standard time taken to complete the program is three years. However, exceptional students may be able to complete the degree in less time.

4 Admission information

Applicants will be graded according to the sum total of their marks for English ability (evaluated on the basis of TOEFL iBT (preferred), TOEIC SP, or IELTS test scores) and interview performance. The interview assessment includes a review of your proposed research(Specialized knowledge gained through your master's study or practical experience; contents of your proposed research plan presentation; any relevant knowledge about the research plan or related subjects).

IEMP (International Environ-mental Management Program) Entrance Examination will be also implemented for highly capable international students.

GSGES Course Tree

Graduate School of Global Environmental Studies (Environmental Management, Global Environmental Studies)

Goal

Secure the current and future health and sustainability of the global environment by fostering (1) practitioners with an ability to improve, sustain, and manage the environment, (2) researchers who establish sustainability as the basis of an integrated, interdisciplinary field, and (3) Internationally effective professionals who address the environmental challenges confronting the 21st century.

Cultivate professional practitioners and researchers who pursue field-based research with a sincere commitment to contribute to the environment and environmental sustainability.

Master's Program Completion

Acquire a wide range of expertise and management skills for practical and sustainable solutions to environmental problems, and complete a master's thesis.

Doctoral Program Completion

Acquire professional capacities and expertise for pursuing independent research and professional work, and complete a doctoral dissertation.

Environmental Management (Doctor)

Foster practitioners with high level of specialized management skills, broad knowledge and problem-solving skills who can work towards the solution of global and regional environmental problems, as well as researchers with such practical capabilities.

Global Environmental Studies (Doctor)

Cultivate internationally active researchers addressing regional and global environmental problems with interdisciplinary perspectives and methodologies, as well as practitioners with such academic quality.

Educational Goal

Completion of Doctoral program is certified based on whether the dissertation contributes to solving global and regional environmental problems, and whether the applicant acquires a high level of professional skills and logical communication capabilities.

Criteria for Doctor's Degree

Dissertation Submission, Defense, and Review **Courses and Seminars & 2nd Progress Report** (Advanced Exercise and Seminars in Global Environmental Studies IIb)	Progress Report	**Dissertation Submission, Defense, and Review** **Courses and Seminars & 2nd Progress Report** (Advanced Exercise and Seminars in Global Environmental Studies IIIa, IIIb) **D3**
	Progress Report	
Internship (>5 months) & Report (Internship) **Courses and Seminars** (Advanced Exercise and Seminars in Global Environmental Studies IIa)	Progress Report	**Courses and Seminars** (Advanced Exercise and Seminars in Global Environmental Studies IIa, IIb) **D2**
	Progress Report	
Courses and Seminars, 1st Progress Report (Advanced Exercise and Seminars in Global Environmental Studies Ia, Ib)	Progress Report (report every 6 months)	**Courses and Seminars, 1st Progress Report** (Advanced Exercise and Seminars in Global Environmental Studies Ia, Ib) **D1**

Research Plan

Admission

Master's Program in Environmental Management

Educational Goal

Foster practitioners with in-depth knowledge and problem solving skills and a broad international perspective, in order to solve regional and global environmental problems, as well as researchers with such practical capabilities.

Criteria for Master's Degree

Conferment of master's degree is based on whether the thesis contributes to solving global environmental problems and regional environmental problems, and whether the applicant acquires sufficient knowledge, expertise, and logical communication skills.

M2

Master's Thesis Submission, Presentation, and Thesis Review
Research for Master's Thesis (Environmental Management Seminar (Compulsory))
Internship Report (Internship II (Compulsory))

M1

Internship (more than 3 months) (Internship I (Compulsory))
Coursework
1. Basics in Global Environmental Studies (Compulsory); 2. Environmental Management Seminar A(Compulsory);
3. Environmental Management Seminar B (Compulsory); 4. Basics in Environmental Management;
5. other lectures in Environmental Management

Admission

Admission

Prospective Students

We seek a diverse body of students with different backgrounds and perspectives:
Future researchers from all academic fields with a keen interest in global environmental problems and their solutions and future and current practitioners with a passionate enthusiasm for environmental management and a sincere commitment to acquiring and implementing knowledge and practical skills.

Voices from Students

VOICE 1

AMERIDYANI Adzani Ardhanareswari
Doctoral Program in Global Environmental Studies
Regional Planning

Reflecting on my academic journey at Kyoto University GSGES, I feel immensely grateful to have been part of such a dynamic and inspiring community. Completing my master's degree and now pursuing my PhD at Kyoto University GSGES has been a truly transformative experience—both personally and professionally.

One of the most enriching aspects of this journey is the chance to study interdisciplinary issues alongside brilliant minds from around the globe. The program's unique approach encourages the integration of knowledge across fields such as environmental science, economics, and policy, empowering us to tackle real-world challenges through diverse perspectives. This exposure has broadened my understanding and underscored the importance of collaboration and open-mindedness in addressing global issues. Throughout my studies, I have learned the vital skill of communicating complex ideas clearly and effectively, especially when engaging with those outside my specialization. This ability has been crucial in my PhD research, as it helps bridge the gap between technical research and practical applications, particularly in advocating for policies that uplift rural communities.

I am also fortunate to belong to a supportive and collaborative lab environment. My lab mates and I engage in enlightening discussions that challenge me to think critically and refine my ideas. These conversations inspire me and broaden my understanding of my research topic while fostering a deep sense of academic community. The support of my peers has been pivotal for my personal and academic growth, and I deeply value the collegial atmosphere we share.

My experience at Kyoto University GSGES has enriched my academic perspective and sharpened my research skills. I am motivated to apply this knowledge to empower rural development, focusing on strengthening the resilience of marginal farmers and transforming inclusive agricultural systems. I am excited to take this knowledge into the field, where I hope to collaborate with NGOs, government agencies, and international organizations to design and implement sustainable solutions that improve the livelihoods of farmers while fostering long-term environmental and social sustainability.

VOICE 2

TOHYA Hiroki
Master's Program in Environmental Management
Environmental Economics

I studied at the Department of Agriculture of Meiji University and then enrolled in Kyoto University Graduate School of Global Environmental Studies (GSGES) to pursue my master's degree. I am currently specializing in Environmental Economics under Professor Kenji Takeuchi, conducting research and analysis on the edible insects' utilization and their practical application into society.

I first learned about GSGES from my advisor during my undergraduate studies. When I consulted them about advancing my studies, they advised me to pursue an environment where I could have a broad perspective and a wide range of options. That advice led me to choose GSGES, where I could study not only economics but also a variety of other fields, including engineering, sociology, and agriculture.

Since enrolling, my days have been filled with learning and discoveries that have far exceeded my expectations. In addition to my major, I am constantly surprised and amazed whenever I encounter new perspectives and values during discussions and presentations with students from diverse nationalities and cultures, all conducted in the common language called "Global Environmental Studies" and English. Working in the fields I had never explored before such as ecology, civil engineering, and ethics also helped me gain new perspectives and ideas, which enabled me to expand my own research. Every time I gain new insights through my interactions with diverse faculty members and students, I am more certain that choosing to pursue my studies this way was the right decision.

In the next academic year, I plan to conduct a field experiment on the commercial use of edible insects in Laos as part of my internship. While conducting research in an unfamiliar culture and environment does come with some challenges, I am confident that the experience of thinking of solutions for social issues by myself and taking that first step will be indispensable for my growth.

To address societal issues like global environmental challenges, it is essential for people from different fields of expertise to respect one another and collaborate. Studying at GSGES truly embodies that philosophy and provides an ideal environment for developing a multifaceted perspective.

Voices from Graduate Students

Graduated in March 2022

KONOMI Yuki

Current Affiliation: Ikimono Club KONOMI (self-employed)

I learned about the Graduate School of Global Environmental Studies (GSGES) during my third year at Kyoto University, when I began worrying about my career path after graduation. As I always loved living creatures and had a vague idea of wanting to protect them, I thought a course on learning about biodiversity and conservation would surely have a positive effect on me after graduation. I also thought it would expand my options to take up internships abroad, which was another factor in my decision to attend GSGES.

In the spring of 2020, however, just when my graduate studies were about to begin, everything in the world halted due to the coronavirus pandemic. In my first online class, it was difficult to understand the professor because the entire lecture was held in English, and I found group discussions to be even more difficult. Most of my field trips were cancelled, and so was my internship abroad, although I was able to work on a one-month short-term internship at the University of the Ryukyus, which was a great experience.

Thus, these two years have been very different from what I had imagined, but nevertheless, what I learned and the networks I made at GSGES are priceless.

I am currently working in the field of environmental education, mainly focusing on living organisms. I develop programs for the general public, mainly for young people, which involve experiencing nature together and having fun learning about living organisms. The program incorporates much of what I learned in classes and from the teachers in GSGES, while reflecting cooperative help of my colleagues at my research lab. The GSGES has many international students with a diverse group of students and professors. As I now work independently, the networks I have made with teachers and colleagues active in a variety of fields are a treasure nothing can replace.

I believe that valuing human networks established through GSGES, on top of learning in the classroom, will surely enrich your life.

Graduated in March 2019

ODA Miki

Current Affiliation: Sony Group Corporation

After graduating from the Graduate School of Global Environmental Studies (GSGES) in March 2019, my classmates and I experienced the coronavirus pandemic from the end of the first year on the job. As we face major changes in our working environment, I have recently heard that some of our classmates will be participating in the COP or are involved in municipal decarbonization projects after gaining experiences.

I enrolled in the GSGES because I wanted to find a job related to solving environmental issues and expand my knowledge and social networks in the process of the job hunting. At school, I had opportunities to learn and meet people beyond my expectations. As I had never lived or studied abroad, I was a little nervous about the lectures held in English and group working with international students. After managing to get by during the first stage, however, I was able to learn global issues of environment, poverty, and gender, and discussed social issues from the perspective of countries and regions outside Japan, thereby having broadened my perspective. I also found the exchange of views very significant in the lounge space where students gather at any time of day.

After graduation, I got a job in corporate sales at a solar power equipment installation company. I am currently working for a company that provides electrical appliances, movies, music, financial services, and other services to customers worldwide. I am in charge of communicating with external parties such as investors about environmental initiatives of the company. For example, disclosure of information on the results of greenhouse gas emissions calculations, future plans to introduce renewable energy, and disaster and drought countermeasures falls into my coverage. As each business has its own climate change countermeasures and there is a variety of stakeholders involved inside and outside Japan, my work requires a broad perspective. Every day I notice that all I learned at the GSGES is connected to my work. Many thanks to all faculty members, interns, and students, who have helped me over the two years.

Graduated from Doctoral Program in Global Environmental Studies (in March 2022)

Dinita Setyawati

Senior Electricity Policy Analyst, Southeast Asia, Ember Climate

When I graduated from the doctoral program at GSGES, I felt a great sense of accomplishment. Through this program, I acquired the knowledge and perspective to look at things from various aspects. The GSGES professors taught me that one needs to consider the interdisciplinary nature of climate change to understand the holistic approach to addressing its challenges. At GSGES, I learned to examine the interactions of climate change with global trends, such as use of natural resources, urbanization, geopolitics and the growing concerns about the safety of our climate expressed by a majority of people across the globe. This program fostered my ability to work at the international level by using innovative global and local approaches to address environmental issues.

My doctoral program was generously funded by the MEXT. I was also able to secure a grant from the Toyota Foundation, which trusted me to manage the projects based on strong recommendations from my supervisor. These opportunities have given me the experience to immerse myself in my research on energy justice, and empower street vendor communities in Indonesia through education for sustainability. Professors and colleagues in my lab have also provided immense support to improve my research and analysis, motivating me to publish my first book in energy studies.

Throughout my three years' experience at GSGES, I gained an abundance of great memories and long-lasting friendships. There were valuable exchanges from joint seminars organized by labs in social sciences, bringing together those who work in science, social sciences and humanities concerning environmental studies. After graduation, I have benefitted from access to the GSGES alumni network where I could recharge my knowledge through discussions with prominent scholars and policymakers. Being a GSGES alumna has certainly equipped me with the skills and knowledge to embark on my journey as an energy social scientist.

Sansai Gakurin

Sansai Gakurin was established in 2002 to promote and support the educational and research activities of the new Graduate School of Global Environmental Studies (GSGES) at Kyoto University by facilitating the exchange of ideas across relevant disciplines, both inside and outside the university. "Sansai" refers to the traditional East Asian triad of heaven, earth and humanity that embraces the phenomenal world. "Gakurin" means a "grove of scholars." The 2001 mission statement of Kyoto University promulgated its intention to pursue harmonious coexistence within the human and ecological community on this planet.

1) Activities designed to integrate all academic disciplines related to global environmental studies and coordinate the outreach activities of GSGES

In order to develop a Global Environmental Studies Directory at Kyoto University, we devise and host regular events, including the Kyoto University Global Environmental Forum, the Hannari Kyoto Shimadaijuku, and the Global Environmental Studies Konwakai. The Kyoto University Global Environmental Forum brings together researchers from inside and outside the university to provide the general public with an insight into the research conducted by the GSGES. First held in April 2008 and typically held two to three times a year, the forum has now been held 45 times. The Hannari Kyoto Shimadaijuku, which is held at the Shimadai Gallery in a traditional Kyoto townhouse, includes public lectures that connect the research pursued at the university with everyday life. It was launched in November 2004 and has been held 42 times to date. Meanwhile, the Global Environmental Studies Konwakai is an informal gathering for GSGES faculty members to present and discuss their research. The first Konwakai was held at the time of the GSGES' establishment in April 2002 and to date, it has been held a total of 126 times.

In addition to these events, we also participate in university-wide international seminars and forums related to global environmental studies and collaborate with a variety of events and activities held in Kyoto with the aim of expression related to humankind and the environment.

2) Activities designed to promote interdisciplinary education and research

We provide medium- and long-term support aimed at ensuring that the educational and research activities of the GSGES is unified toward promoting "global interests"—interests that are above and beyond the gains and losses of human society—and toward the development of civilization across the globe.

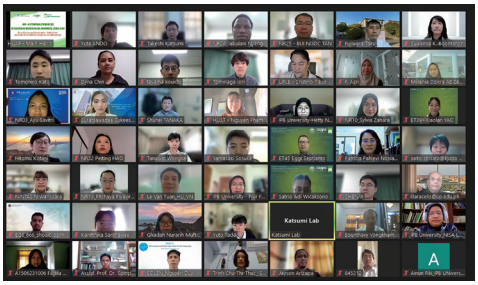
The mainstay of these activities is the regular publication of the SANSAI Newsletter, which reports the various activities of the GSGES. The first issue of the SANSAI Newsletter was launched in October 2012, and 35 issues have been published to date.

3) Activities designed to support international education and research programs

We are currently providing support for international education and research programs provided at Kyoto University and the GSGES. We promote vibrant activities in international collaboration, and regularly present the results of these activities at symposiums and seminars that we organize. The annual GSGES International Symposium is a major achievement among these international programs, as it provides researchers and students from partner universities in various countries with the opportunity to come together and participate in discussions. The following table shows locations, numbers of participants, and other such information on the past symposiums. We also aid in acquiring the scholarships and grants needed to regularly accept a large number of international students and special auditing students.

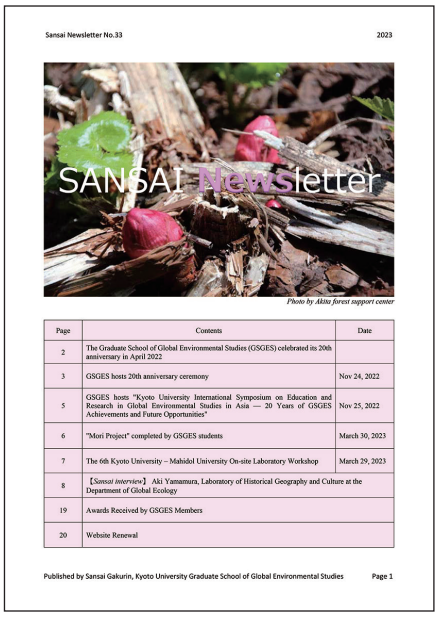
Main International Symposiums held by the GSGES

Date	Location	Collaborating university	No. of participants (universities/countries)
March 5, 2009	Kyoto, Japan	–	155 (11/3)
March 10, 2010	Hanoi, Vietnam	Hanoi University of Science and Technology	85 (11/3)
March 11, 2011	Hue, Vietnam	Hue University of Agriculture and Forestry	150 (11/5)
December 11, 2011	Shenzhen, China	Tsinghua University	97 (5/3)
March 7-8, 2013	Kyoto, Japan	–	141 (15/10)
September 15, 2013	Hoi An, Vietnam	Hue University of Agriculture and Forestry	99 (13/5)
March 25, 2014	Kyoto, Japan	–	141 (10/7)
September 29, 2014	Can Tho, Vietnam	Hanoi University of Science and Technology	90 (14/6)
July 27, 2015	Da Nang, Vietnam	University of Danang	134 (12/5)
December 11-12, 2015	Kyoto, Japan	–	152 (25/16)
November 13-14, 2016	Bangkok, Thailand	Mahidol University	185 (30/14)
October 30-31, 2017	Hanoi, Vietnam	Hanoi University of Science and Technology	285 (42/15)
November 30 - December 1, 2018	Bogor, Indonesia	IPB University	195 (19/9)
November 26-28, 2019	Kyoto, Japan	—	269 (32/17)
November 30 - December 1, 2020	Zoom Online Symposium	Mahidol University	423 (60/13)
November 29-30, 2021	Zoom Online Symposium		338 (61/21)
November 24-25, 2022	Kyoto, Japan Zoom Online Symposium		354 (78/22)
December 11, 2023	Hue, Vietnam	Hue University of Agriculture and Forestry	301 (52/13)
December 3, 2024	Phnon pehn Cambodia	Royal University of Agriculture	360 (37/22)



The 42nd Hannari Kyoto Shimadai-juku (March 20, 2019)

Kyoto University Global Environmental Forum



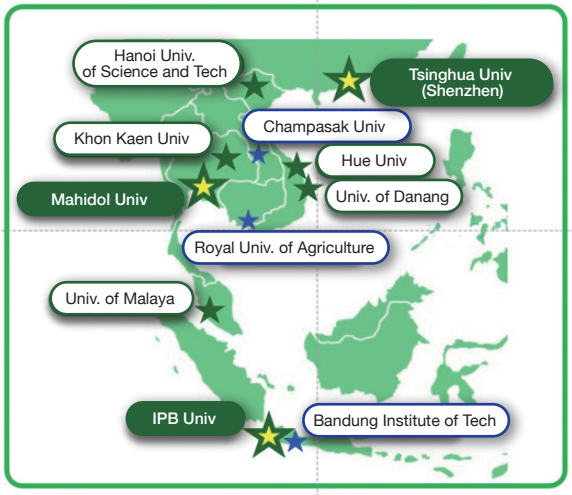
SANSAI Newsletter No.33 (Published August 21, 2023)

Environmental Innovator Program EIP
— Cultivating Environmental Leaders across ASEAN Region —

The Environmental Innovator Program EIP - Cultivating Environmental Leaders across ASEAN Region - is one of our major international education and research programs. It was operated under special budgetary requests from FY2015–18 and later became a part of the school's regular budget in FY2018, the originally scheduled final year, and remains in operation until today.

Rapid economic growth in the ASEAN region has created environmental problems such as air pollution, improper waste management, and water pollution; and rapid urbanization has created social problems such as traffic congestion, deforestation, and increased vulnerability to disasters. In light of these circumstances, this program promotes a range of educational and research activities based on the development of human resources able to play active roles both internationally and practically.

In terms of education, the program is partnered with Mahidol University (Thailand), IPB University (Indonesia), and Graduate School at Shenzhen, Tsinghua University (China) to offer three double-degree programs enabling students to earn two master's degrees in three years. Students enrolled in these programs are able to study broadly and in-depth, acquiring both a multi-disciplinary perspective and advanced expertise through global environmental studies at GSGES and pursuing more specialized research (e.g., environmental engineering, agriculture) at a partner university. We also aid students participating in internship training in the ASEAN Region and other overseas locations.



Partner Universities

In terms of research, we also launched the On-site Laboratory at Mahidol University in FY2019 to enhance its functionality as a hub for international joint research and international education. In particular, the education and research program that Faculty of Engineering of Mahidol University and GSGES have been collaborating on aims for horizontal education and research collaboration between GSGES and other faculties and schools, as well as vertical one from undergraduate to doctoral courses.

In addition, through the multilateral education and research network established with eleven partner universities, including the three universities mentioned above, we promote the mutual exchange of students and researchers and contribute to the development of international and cross-disciplinary human resources who will take leadership roles in solving global environmental problems.

Recent Collaborating Institutions for Internship Study

Private Sector

- TERUKAZU NII & VASANTI MENON, ARCHITECTS & ASSOCIATES
- Smart City Institute Japan
- IDEA Consultants, Inc.
- UEYAKATO LANDSCAPE Co., LTD.
- E-konzal
- Tsukudafarm Co. Ltd
- Shigenori Uoya Architects and Associates
- Ecommit Corporation.
- Agelle Corporation
- FP Corporation.
- OKUMURA CORPORATION.
- KANSO CO.,LTD.
- Green Power Investment Corporation
- Nippon Expressway Research Institute Company Limited
- TOSOH Analysis and Research Center Co.,Ltd.
- Nakanojo power Co.,Ltd.
- NEXTEMS
- HACHIOH Co., Ltd.
- Picchio Wildlife Research Center.
- Hyakumori Inc.
- Lago
- Ryohin Keikaku Co., Ltd.
- Kamoshida farm
- studio tawaraya
- GR Japan K.K.
- SHIZEN ENERGY Inc.
- Shimin Energy Chiba Limited Liability Company
- DAIWA LEASE CO.,LTD.
- Toko Geotech Co.,Ltd.
- Toyo Construction Co., Ltd.
- JAPAN NUS CO., LTD.
- Mikuniya Corporation.
- NIPPON STEEL CORPORATION.
- Peterson Projects & Solutions Japan Co Ltd
- Matsui Kensetsu K.K.
- Mitsubishi UFJ Research and Consulting Co., Ltd.
- Sanyo Chemical Industries, Ltd.
- Midori Farm Kyoto
- Megijima Guesthouse &Café Megino
- Fridays For Future
- INOW Kamikatsu
- United Nations Environment Programme
- THE MORI MEMORIAL FOUNDATION.
- FEAST NPO
- Green Infrastructure Research Institute
- Satoyama Design
- General Incorporated Association CDP Worldwide - Japan
- Renewable Energy Institute
- Research Institute of Innovative Technology for the Earth (RITE)
- Institute for Global Environmental Strategies
- THE NATURE CONSERVATION SOCIETY OF JAPAN
- Hamamatsu Cultural Foundation
- Kyoto City Greenery Association
- Renewable Energy Institute
- Okinawa Environment Club (OEC)
- Satoyama-Gakkou Tokyo
- Koganecho Area Management Center Information
- Institute for Sustainable Energy Policies
- Kiko Network
- Wetlands International Japan
- UNITAR Hiroshima Office
- Earthship Biotecture Academy

Ministry/Local Government/Universities

- Saijo City
- Okinawa Prefectural Enterprise Bureau
- The National Gardens Association Kyoto Gyoen National Garden
- Kyoto city zoo
- Kyoto Botanical Gardens
- Kyoto Environmental Activities Association
- Japan Association for the 2025 World Exposition
- Japan International Research Center for Agricultural Sciences (JIRCAS)
- Japan International Research Center for Agricultural Sciences (JIRCAS)
- National Institute for Environmental Studies.
- National Institute of Advanced Industrial Science and Technology
- Fisheries Research and Education Organization
- Tropical Biosphere Research Center University of the Ryukyus
- National Institute of Public Health
- Lake Biwa Environmental Research Institute
- Maibara City, Shiga Prefecture
- Research Institute for Humanity and Nature
- Research Institute of Environment, Agriculture and Fisheries, Osaka Prefecture.
- Okinawa General Bureau
- Policy Research Institute, Ministry of Agriculture, Forestry and Fisheries

Overseas

- Anahuac Puebla University
- ASCEM B.V
- E Guard Environmental Services Co.Ltd
- Greenspace Architect Co.Ltd
- Lundquist srl
- PT Bamboo Lab Architect
- PT. Vale Indonesia, Tbk
- Represetative office of Hoffmann - La Roshe Ltd in Vietnam
- Shunyi New Energy Technology Co., Ltd.
- Wuppertal Institute
- 武漢水務集団有限公司
- 350 Pacific
- Building Up Sustainability Center
- Center for International Forestry Research
- Global Environmental Institute
- International
- Japan Business Council in Europe
- Motu Economic and Public Policy Research
- Permatil (Permaculture Timor-Lorosa'e)
- Thailand Development Research Institute
- The Gobi Institute
- Tiyeni Limited
- PTG International Youth College
- UNITAR Hiroshima Office
- United Nations Economic and Social Commission for Asia and the Pacific
- United Nations Framework Convention on Climate Change (UNFCCC)
- Nanjing Environmental Monitoring Center
- National Institute of Health of Thailand
- National Museum of Natural History (France)
- National Parks Board, Singapore
- National Research and Innovation Agency
- Papua New Guinea Forest Authority
- Research & Development Division, Forestry Department of Sarawak
- Land Office of Sijunjung Regency
- Development Planning Agency at Sub-National Level Badan Perencanaan Pembangunan Daerah Sukabumi Regency
- Forest Department Sarawak
- National Institute of Aeronautics and Space of Indonesia
- National Research and Innovation Agency of Indonesia (BRIN)
- Research Center for Geological Disaster- BRIN, Bandung
- Sarawak Biodiversity Centre
- University of Caen, Normandy/IFSTTAR
- Zambia Agriculture Research Institute
- Barttlet Center for Advanced Spatial Analysis, UCL
- Chiang Mai University
- Da Nang University of Science and Technology
- Erenhot International School of Inner Mongolia Normal University
- ETH Zurich
- Guangdong University of Technology, China
- Gustav Eiffel University
- Hanoi University of Science and Technology
- Heidelberg University
- Hue University
- Hue University of Agriculture and Forestry
- IPB University
- Khon Kaen University
- Lille University of Science and Technology
- Mahidol University
- Maldives National University
- Multimedia Nusantara University
- Ocean University of China
- The University of Da Nang, University of Technology
- Tongji University
- Tribhuvan University
- Tsinghua Shenzhen International Graduate School
- University of Applied Forest Sciences Rottenburg
- University of California, San Diego
- University of Hamburg
- University of Zambia
- Vietnam National University of Forestry
- Walailak University International College
- Zhejiang University

(The results from 2020 to 2023)

Master's Program My Internship Experience

Environmentally-friendly Industries for Sustainable Development TSUCHIMURA Yutaro

My internship at Da Nang University of Science and Technology in Vietnam was a very enriching experience. With the help of the university faculty and students, I conducted a microplastic load survey. I actually visited a sewage treatment plant and landfill site in Da Nang City to conduct sampling. The managers explained to us about the current treatment technology and history. I also vacuumed the road surface to collect dust samples and analyzed them, and as a result, I estimated that road surface runoff during rainy weather is the largest source of load on the river. By comparing the data obtained in Da Nang with data in Japan, I have gained a deeper understanding of the environmental realities in the region.

However, this training was not limited to data collection; it was also an enriching experience to live in Da Nang and interact with the local community. When I walked around the city, I could see many trash cans and realized that the city is being developed in an environmentally friendly manner. I also had the opportunity to learn about local culture and customs and talk about the impact of environmental issues on the region as a whole through interactions with the people of Da Nang. At the same time, I was impressed and inspired by their passionate energy for environmental issues. I learned that, through communication with the local people and interaction with their culture, I gained a deeper understanding of environmental issues. I keenly realized that harmony with local culture is essential in solving environmental problems, and that it is increasingly important to work with local communities to find sustainable solutions. Since I myself had little experience of living overseas, I feel I was able to make many new discoveries and get a better grasp of the big picture through this training program.

Message from a Collaborating Institution

Saijo City Regional Revitalization Advisor TOKUMASU Minoru

Saijo City is a provincial city in Japan with a population of about 110,000, located in the northern part of Shikoku facing the Seto Inland Sea. The ratio of plains to forests is 3:7, which is almost the same ratio as Japan as a whole. Due to the Setouchi climate, the annual precipitation in the plains is limited to about 1400 millimeters, which is below the average in Japan. The Ishizuchi mountain range including Mt. Ishizuchi (1982 meters above sea level), the highest peak in western Japan, rises in the hinterland, and there is 3,000 millimeters annual rainfall in this area. This amount of precipitation produces groundwater which is utilized in the plain. In addition, factories are concentrated in the coastal area. The annual industrial shipment value is comparable to that of Kochi Prefecture as a whole, and the western part of the prefecture is one of the most prosperous agricultural areas in Japan. All kinds of diversity are concentrated in Saijo City, such as traditions and culture represented by the Saijo Festival, minerals generated from hydrothermal deposits, landscapes and topography formed by orogenic movements, and a natural environment rich in biodiversity.

In September 2004, Saijo City was severely damaged by a typhoon. The Graduate School of Global Environmental Studies (GSGES), Kyoto University and Saijo City started collaboration in 2005 through research on regional disaster prevention and revitalization of mountainous areas. In December 2007, an exchange agreement on education and research was concluded. In that year, Saijo City accepted two internship students from GSGES. The internship themes were "Regional disaster prevention" and "Investigation of regional resources and their potential for revitalization in Saijo City." In the former case, the student stayed in mountainous areas affected by the disaster and learned the importance of human life through close interaction with local people. In the latter case, the student proposed a "field campus concept" that utilizes the potential of local resources. Since 2019, when I was in charge of the internships, research projects taking advantage of the diversity of Saijo City have been carried out, such as "Research on awareness, knowledge, and behavior regarding the use of pesticides," "Forest conservation activities," "Practical research for sustainable development in terraced rice fields," and "Research on the impact of shrine-related cultural activities on urban and rural areas." I look forward to welcoming you in Saijo City.

After Graduation

Master's Program in Environmental Management

Private Sector

- JAC Corporation
- KPMG Consulting Co., Ltd.
- Accenture Japan Ltd
- Almec Corporation
- IDEA Consultants, Inc.
- Willis Japan Holdings K.K.
- EF-ON INC.
- Omron Healthcare Co., Ltd.
- Organo Corporation
- Konami Holdings Corporation
- Sharp Corporation
- Simplex Inc.
- Deloitte Tohmatsu Consulting LLC
- Pacific Consultants Co., LTD.
- Panasonic Corporation
- Mizuho Information & Research Institute, Inc.
- Metawater Co., Ltd.
- Yanmar
- Itochu Plastics Inc.
- Rakuten Group, Inc.
- IHI Corporation
- Kantar JAPAN
- Kubota Corporation
- Jtekt Corporation
- Spicebox, inc.
- Forward Co.,LTD.
- Fujita Corporation.
- The Boston Consulting Group
- MAHLE Filter System Japan Corporation
- Recruit Holdings Co., Ltd.
- Roland Berger Holding GmbH
- Okumura Corporation
- Kumagai Gumi Co.,Ltd.
- Konoike Construction Co.,Ltd.
- Sumitomo Mitsui Financial Group, Inc.
- Sumitomo Mitsui Banking Corporation
- Obayashi　Corporation
- Yomiko Advertising Inc.
- Nikken Sekkei Ltd.
- Hitachi, Ltd.
- Hakuhodo Inc.
- Fujitsu General Limited
- Nomura Research Institute, Ltd.
- Marubeni Corporation
- Kurita Water Industries Ltd.
- Kokusai Kogyo Co., Ltd.
- Hanwa Co., Ltd.
- Sumitomo Mitsui Trust Bank, Limited
- Sanki Engineering Co., Ltd.
- Mitsubishi UFJ Research and Consulting Co., Ltd.
- Mitsubishi Chemical Engineering Corporation
- Shizen Energy Inc.
- Kajima Corporation
- Mori Trust Co., Ltd.
- Shimizu Corporation
- Nippon Telegraph and Telephone West Corporation
- Daiei Kankyo Holdings
- Osaka Gas Co., Ltd.
- Dai Nippon Printing Co., Ltd.
- Daiwa Energy Co., Ltd.
- Daiwa Securities Co. Ltd.
- Nagase & Co., Ltd.
- Shimadzu System Solutions Co., Ltd.
- Tokyo Metro Co., Ltd.
- Tokyo Electric Power Company Holdings, Inc.
- Toho Gas Co., Ltd.
- Toyo Construction Co., Ltd.
- Nissan Mortor Corporation
- Nippon Systemware Co.,Ltd.
- Nippon Television Network Corporation
- Nippon Koei Co., Ltd.
- Yachiyo Engineering Co., Ltd.
- Mitsubishi Corporation
- Sumitomo Corporation
- Daikin Industries, Ltd.

Corporate Organaization

- Urban Renaissance Agency
- Kyoritsu Women's Educational Institution
- Institute for Global Environmental Strategies
- National Institute of Technology and Evaluation
- Japan International Cooperation Agency(JICA)
- Japan Railway Construction, Transport and Technology Agency
- Kyodo News
- Reseach Institute for Humanities and Nature

Ministry/Local Government

- Ministry of Agriculture, Forestry and Fisheries
- Ministry of Land, Infrastructure, Transport And Tourism
- Ministry of the Environment
- Wakayama Prefecture
- Tokyo Metropolitan Government
- Shiga Prefectual Office
- Kyoto City
- Miyazaki Prefecture
- Kobe City
- Kanagawa Prefecture

Overseas

- Ministry of Public Works and Housing
- Water Resources Department, Guangzhou, China
- Hue University of Sciences
- King Mongkuts Institute of Technology Ladkrabang
- Semarang State University
- Chamber of Industry and Commerce

Ph.D Program

- Kyoto University
- University of Tokyo
- Nagoya University
- Cambridge University
- Chinese University of Hong Kong
- University of Queensland

Doctoral Program

- E KONZAL
- Research Institute for Natural Capital Co.,Ltd
- OBAYASHI　CORPORATION
- Toshiba　Corporation
- Toda Corporation
- Sumitomo Riko Company Limited
- Smart Life Research Institute
- Willis Japan Holdings K.K.
- Sumitomo Forestry
- Kyoto Environmental Activities Association
- Institute for Global Environmental Strategies
- National Agriculture and Food Research Organization (NARO)
- Research Institute for Humanities and Nature
- Japan International Cooperation Agency(JICA)
- Japan Society for the Promotion of Science
- Ministry of the Environment
- Kyoto University
- KONAN UNIVERSITY
- Osaka Prefecuter University
- United Nations University Institute of Advanced Studies
- MINISTRY OF PUBLIC WORKS AND HOUSHING
- United Nations Development Programme
- IPB University
- Sher-e-Bangla Agricultural University
- Bandung Institute of Technology
- Hue University of Sciences
- King Mongkuts Institute of Technology Ladkrabang
- Yokohama National University
- Vietnam National University of Agriculture

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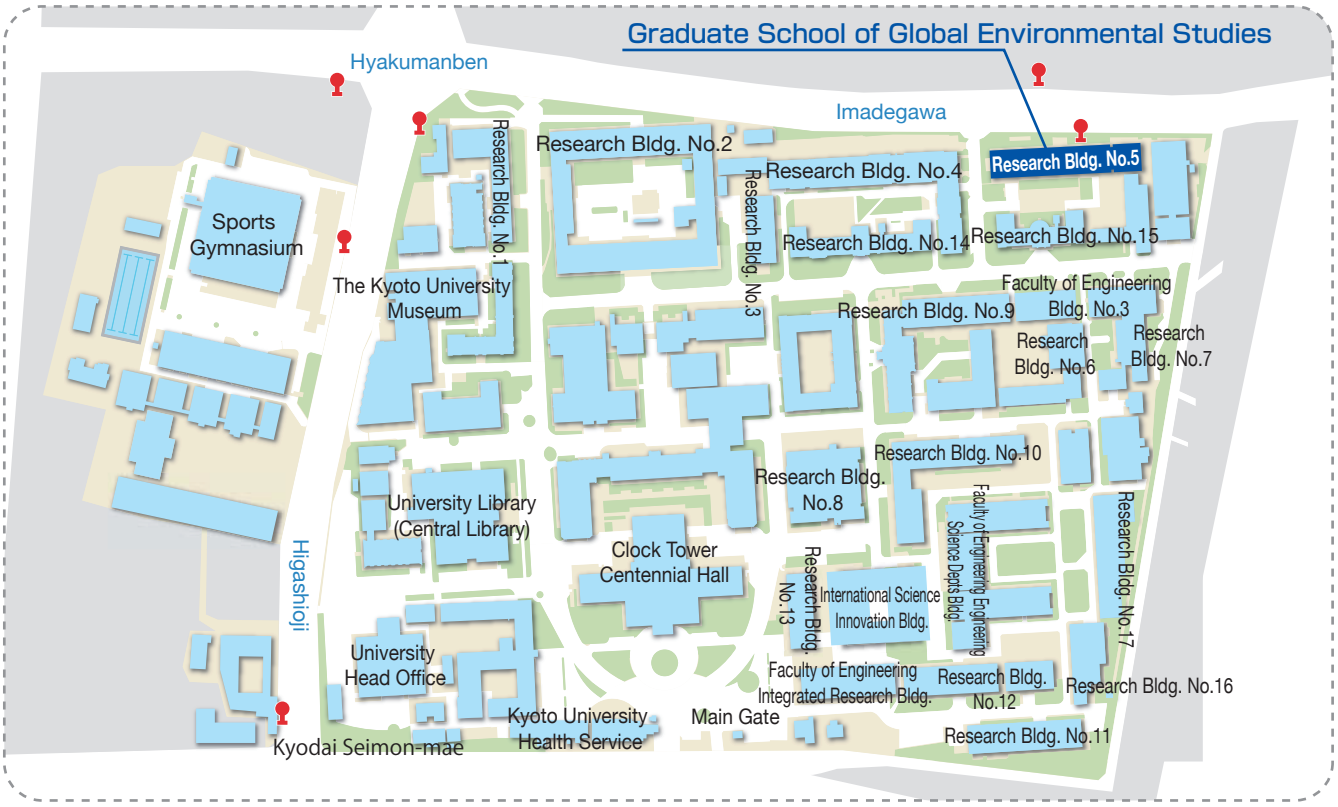
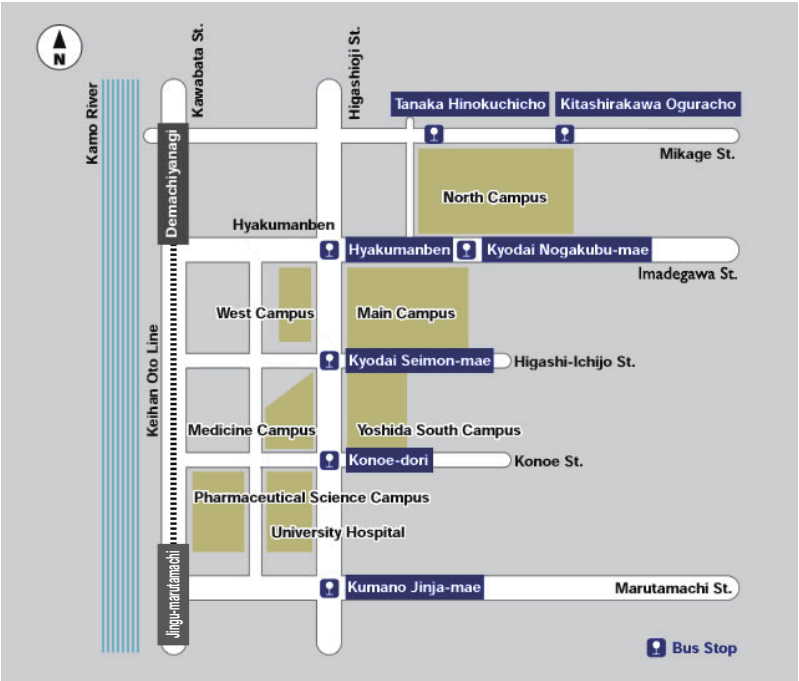
Professor TATENO Ryunosuke
Assistant Professor SUZUKI Keita

* Environmental Innovator Program (EIP) —Cultivating Environmental Leaders across ASEAN Region—

Location Map

Yoshida Main Campus





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