


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 2018

ガイドブック 2018

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 are required to participate in one week of fieldwork, held in the summer, as well as a three month internship program.

Two new projects –the "Environmental Innovator Program (EIP) -Cultivating Environmental Leaders across the ASEAN Region-" and "Japan Gateway: Kyoto University Top Global Program (JGP) Environmental Studies" were launched in 2015, for realizing internationalization of education and research and establishing international double/joint degree programs.

The 477 master's program graduates and 152 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

Shinya FUNAKAWA

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Department of Global Ecology

Department of Technology and Ecology

Department of Natural Resources

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

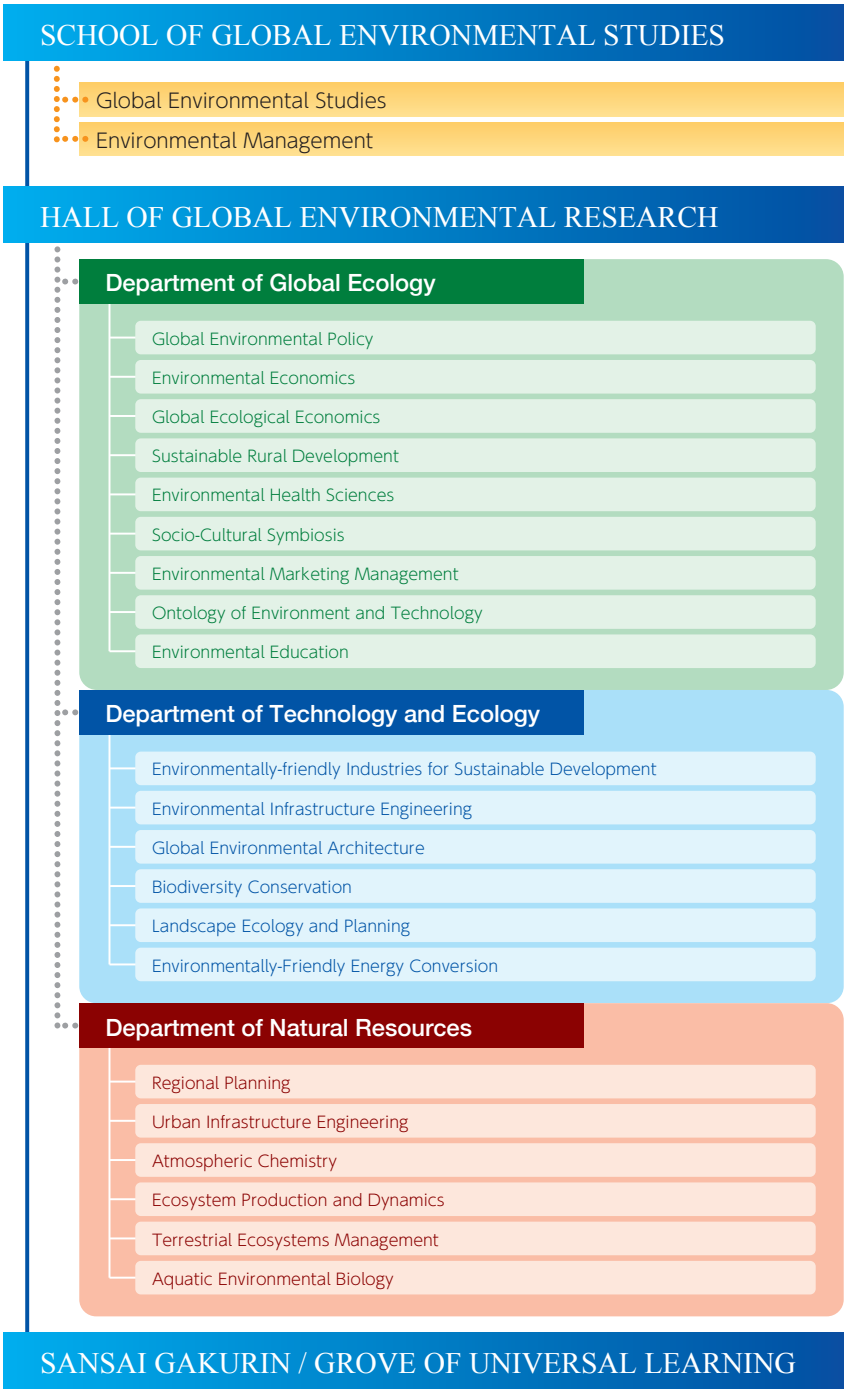
The Graduate School of Global Environmental Studies collaborates with many other graduate schools, institutes and research centers of Kyoto University to conduct interdisciplinary study and education that link other academic fields with global environmental studies. In order to facilitate such support, 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／
Environmental Health Sciences／Socio-Cultural Symbiosis／
Environmental Marketing Management／Ontology of Environment and Technology／
Environmental Education

Global Environmental Policy

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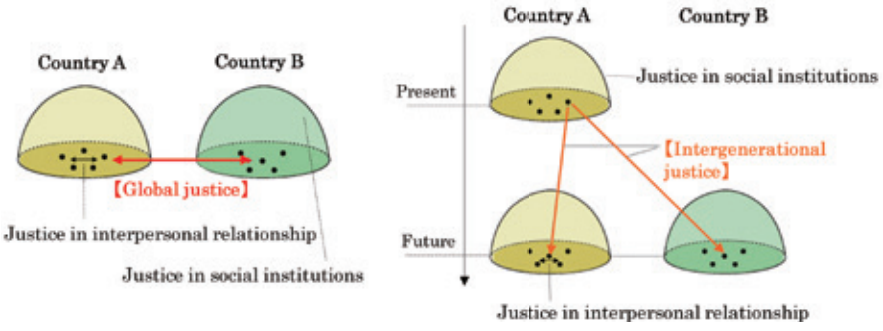
In the laboratory of Global Environmental Policy, we explore normative and positive questions concerning environmental problems and policies on local, national, regional, and global scales. On one hand, foundational topics are studied from the perspectives of legal and political philosophy. One group of these topics concerns issues in global justice, one of which is the question of what principle should be adopted in distributing the benefits and burdens of climate change policy among individuals or states across the world. Another group has to do with issues in intergenerational justice, notably the question of what are grounds for the obligation that the present generation might have toward future people.

On the other hand, we also conduct empirical research on international environmental law, environmental policy and its processes at national and local levels, and conservation-related activities by NGOs, businesses, and citizens. We explore these topics by using both qualitative case study methods and quantitative statistical techniques.



Global and intergenerational justice

Environmental Economics

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The purpose of this laboratory is to analyze climate change policies and energy policies from economics perspectives. In order to do so, we request all the applicants for this laboratory to study environmental economics as its theoretical foundation. Based on this, we focus on the following three research topics:

【1】 Economic analysis of climate change policies and their policy designs

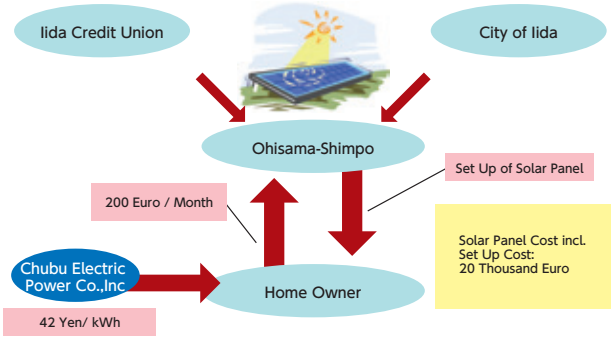
We focus mainly on climate change policies among various environmental issues. As a role of social science, design of social institutions and policy instruments is one of the most important tasks. Environmental policy instruments (environmental taxes, emissions trading systems, subsidies, etc.) are main target of our research.

【2】 Renewable energies and electricity market liberalization

Renewable energy policies play a crucial role in the climate change policies. On the other hand, research of the future power systems that make the large-scale renewable energy generation and grid integration possible is also important. This laboratory promotes a research project that supports transition of power systems from the centralized one to more distributed one, by increasing renewable energies in the liberalized electricity market environment.

【3】 Renewable energies and regional rehabilitation

Unlike the fossil fuels and nuclear energies, renewables are the universally distributed energy resources for any regions. We are tackling the issue of how to link renewable energy development with the regional rehabilitation. Collaborating with municipalities, we are currently engaged in "reginal added value analysis" and research on appropriate forms of business entities like "Stadtweke" or energy cooperatives.



Regional business model for promoting solar power in the City of Iida, Nagano Prefecture

Global Ecological Economics

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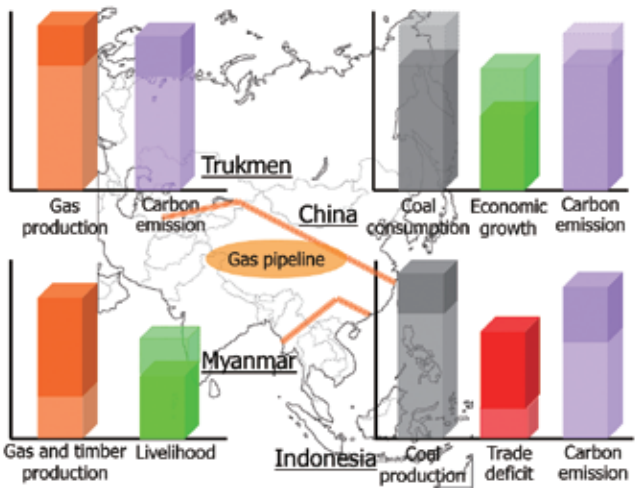
Global environmental challenges require us to conduct economic analysis on the carrying capacity of the earth as well as the specific local nature of the environment when we analyze traditional economic challenges such as poverty and business cycles. This implies that we need to revisit the rules and actors of development and to take trans-boundary impacts of development, environmental and energy policies into account.

Against this background, we at the Global Ecological Economics group focus special attention on the following research.

(a) Underlying economic and institutional causes of unsustainable development
(b) Policies, institutions and financial mechanisms that advances sustainable development
(c) Socio-technological transition toward sustainable pathways
(d) Global economic system and governance to advance sustainable development globally without causing pollution haven

The Global Ecological Economics group is also joining in the Research Unit for the Development of Global Sustainability of Kyoto University.



Global impacts of China's energy-climate policy

Sustainable Rural Development

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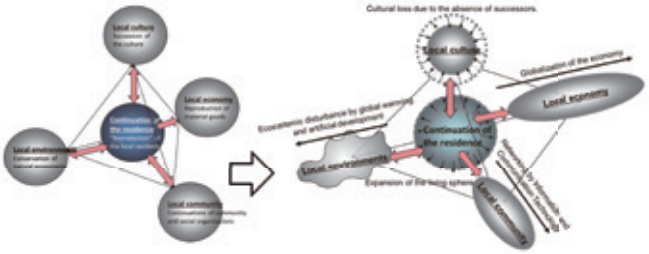
Rural sustainability (RS) was traditionally maintained by preserving harmony within a geographically limited frame. This type of harmony was maintained by five components, as shown in the figure on the right. Because all of these components are associated with regional characteristics, rural sustainability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



Components of Rural Sustainability and their Changes.

Environmental Health Sciences

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Industrialization urbanization and globalization have brought new environmental challenges. To assess the health risks associated with these environmental problems, the following components are essential:

- Sufficient information on various environmental hazards
- Accurate and precise exposure assessment
- Quantitative evaluation of exposure-response relationship
- Elucidating mechanisms by which environmental hazards cause health effects

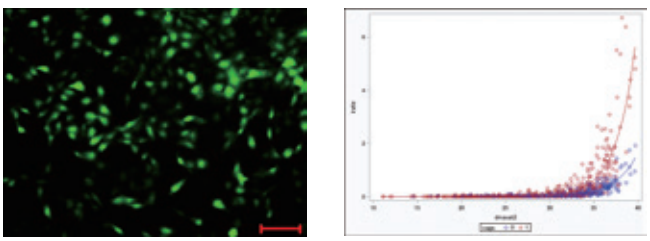
The goals of our division are to establish the methods for comprehensive evaluation of health risks of environmental factor and to prevent adverse health effects on the basis of mechanisms by which environmental hazards cause and to promote health in human populations.

Outline of study (Experimental studies)

1) To elucidate health effects of air pollutants and the underlying mechanisms
2) To identify responsible factors and the components of air pollutants that contribute to health effects
3) To elucidate health effects of environmental chemicals and the underlying mechanisms
4) To reduce health effects of environmental pollutants using technology of medical engineering

Outline of study (Epidemiological studies)

1) To elucidate health effects of air pollutants for human population
2) To evaluate health effects of climate change
3) To assess future health impacts of environmental policy
4) To develop exposure assessment model of environmental pollutants



(left) Oxidative stress in airway epithelial cells exposed to environmental pollutants (right) Scatter plot of ambulance dispatches due to heatstroke and apparent temperature

Our laboratory is also a part of the Department of Environmental Engineering, Graduate School of Engineering, Kyoto University, and is located at Katsura Campus, where students in the Graduate School of Engineering are working together.

Socio-Cultural Symbiosis

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This laboratory will help students to gain an understanding of environmental problems and their causes and examine public policies designed to solve these problems from the viewpoints of political science and cultural anthropology.

Humankind has hitherto been able to flexibly adapt to an ever-changing environment. However, a dramatic increase in both the productivity and consumption of human societies since the beginning of the modern era has imposed a tremendous load on the environment and resulted in disasters that humans lack the capacity to deal with. For example, as global capitalism expands and effective ways to protect the environment are being sought, what kind of changes have hunter and gatherers and commercial nomads, who have led their nomadic life while utilizing natural and human resources, been exposed to, and what risks have they faced? In order to consider complex environmental problems, we examine how various communities have adapted to environmental changes and have maintained their lifestyles over time from a cultural anthropology perspective.

Regarding environmental problems in developed countries, political as well as economic factors play a crucial role. Environmental policies are formulated based not only on differences in public attitudes to environmental issues but also on a range of political factors such as whether or not a country has environmentally-conscious political parties, how active environmental movements are, the degree of political influence agricultural lobby groups have, and the ranking of environmental ministries and agencies. We examine the political background of environmental problems from a political science perspective and environmental policies from the viewpoint of policy studies.

Camping Site of a Nomadic Community called Kalbeliya (Rajasthan, India, Sep. 2011)

Environmental Marketing Management

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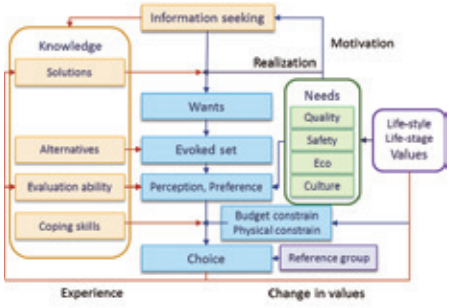
To achieve a more sustainable society beyond "negative externality" problems, all members of society must internalize the value of harmonizing with the environment. Can enterprises cover the costs with the returns from their pro-environmental activities? Is there a high probability that they can gain 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

Ontology of Environment and Technology

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The aim of this laboratory is to explore (or to unfold) the implications for a non-metaphysical onto-logy (knowledge of the being) of our physical environment.

What we shall try is :

- to focus on the implications of cultural theories about the concept of nature examining European philosophy from the past three centuries (from Descartes, Hobbes, Spinoza, Rousseau, and Kant to von Uexküll, Heidegger, and Deleuze & Guattari) ;
- to understand the modernist mode of *forgetting* "in-the-world-ness" as part of Heidegger's reasoning, in order to overcome the subject object duality in view of a non-objectifying anthropocentric "knowledge" ;
- to analyse culture as the operation of mechanisms and *technologies* (ref. M. Foucault) of mediation to occupy the gap between matter and life, social and individual, the environment and human activities.

Our postmodern-biotechnological age, full of intelligent machines and cyborgs, is also an age of natural and enviromental crises. It is an urgent matter to investigate the natural environment so as to abandon unreservedly anthropocentricism in the life sciences, and to deconstruct a humanized image of nature.

Environmental Education

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Our research field is built on three pillars: (1) education for sustainable development (2) community resilience studies and (3) material cycles and low carbon systems and society. We aim to reduce the gap between knowledge and practice through pro-active, field-level, community-based education, research and project implementation.

Education for sustainable development (ESD) empowers individuals and communities to create a more sustainable future. Our activities include development of approaches for formal, non-formal and informal sustainability education as well as efforts to promote campus sustainability. Community resilience studies focus on migration and displacement induced by development, disasters and climate change, with special emphasis on inclusion of multiple stakeholders to enhance well-being while preserving a community's natural resource base. Finally, we focus on material cycles and low carbon system approaches, mainly on communities that include campus, Kyoto and local communities, and the Asia Pacific region, with emphasis on MSW (municipal solid waste), disaster waste, and energy saving awareness and behavior.

From conducting research, internships and collaborative projects, faculty and students develop unique community-based approaches for education, environmental management, communication and sustainable development.

Campus sustainability campaign

Presentations by students

Focus group community discussions

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／
Environmentally-Friendly Energy Conversion

Environmentally-friendly Industries for Sustainable Development

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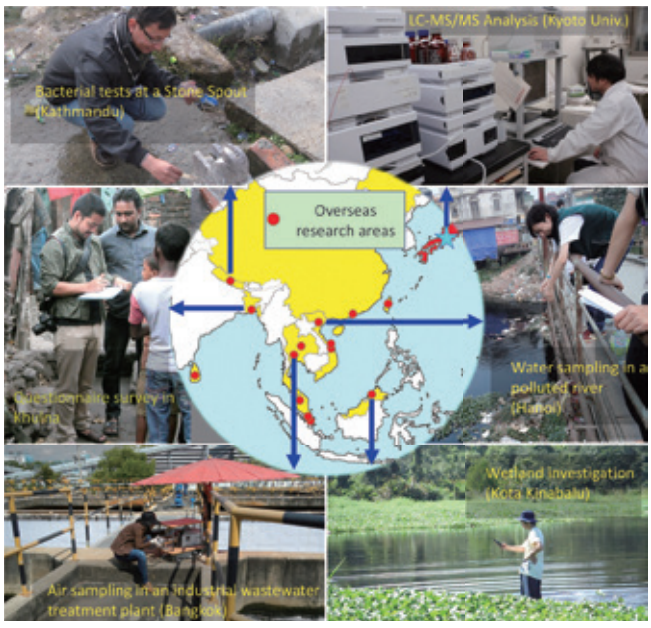
Japan overcame severe problems with environmental pollution in the 1960s and 70s and became one of the world's most environmentally advanced countries. During this process, Japan accumulated vast amounts of knowledge, skills and experience in the practical solution of environmental problems. This includes 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.

By means of the various research projects carried out in this laboratory, we foster environmental leaders who will have the ability to solve environmental problems anywhere in the world. Conservation and management of aquatic environments, the promotion of resource recycling, the development of energy-saving industries, and the improvement of environmental sanitation in developing countries are all topics being studied using many kinds of tools, such as water quality analysis, micro-pollutant analysis, water and micro-pollutant treatment technologies, and land use data analyses based on satellite images.



Examples of surveys and experiments

Environmental Infrastructure Engineering

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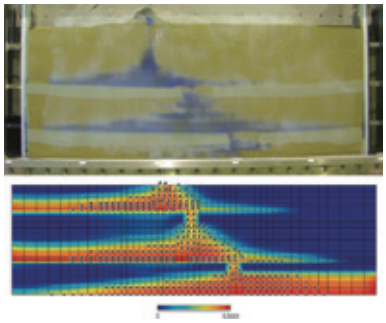
The Environmental Infrastructure Engineering group deals with construction and management of sustainable and environmentally-friendly infrastructures, and mainly focuses on the preservation and restoration of the geo-environment. With particular attention to the promotion of a recycling-based society, 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

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 research work in Kazahstan

Project of ex-situ conservation of an endangered plants conducted at Takahama, Fukui Prefecture (Photo: "Foster parents" at primary school)

Landscape Ecology and Planning

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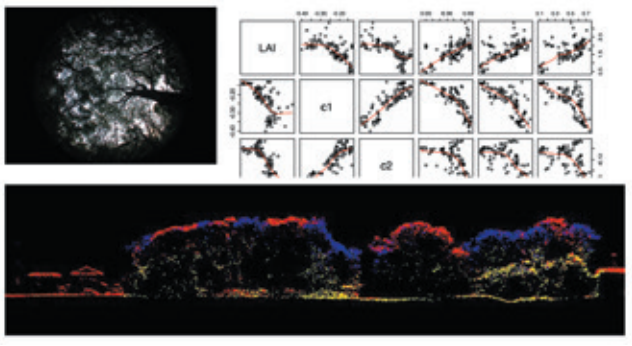
The goals of our laboratory can be summarized as:

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 areas, ranging from small gardens and urban parks to rural and mountain areas, and also includes regions undergoing desertification. 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

Environmentally-Friendly Energy Conversion

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Our society faces many environmental and energy resource problems. Effective utilization of energy resources is the most feasible method to solve these problems. In this laboratory we conduct the fundamental research on electrochemical energy conversion devices such as fuel cells and rechargeable batteries. In particular we focus on the "interface" at which the electrochemical reactions proceed and investigate fundamental concepts for enhancing the rate and reversibility of the interfacial reaction. The main themes of our laboratory research are 1), 2), and 3) as shown below.

1) Lithium-ion batteries

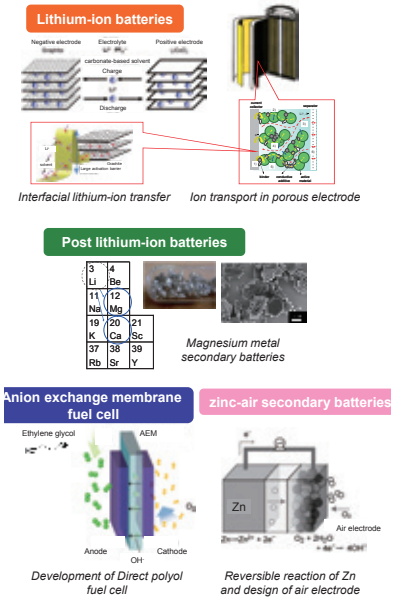
Fundamental research on the "electrode/electrolyte interface" and "ion transfer in electrodes" to elicit performance of lithium-ion batteries.

2) Post lithium-ion batteries

Fundamental research and material search of magnesium metal secondary batteries, sodium-ion batteries, and aqueous lithium-ion batteries as next-generation rechargeable batteries beyond lithium-ion batteries.

3) Fuel cells and metal-air rechargeable batteries

Fundamental research and material search of anion exchange membrane fuel cells and zinc-air secondary batteries. In anion exchange membrane fuel cells, the reduction reaction oxygen supplied from air is used as the positive electrode reaction and the oxidation reaction of polyol is used as the negative electrode reaction. In zinc-air secondary batteries, the reduction and evolution reaction oxygen supplied from air is used as the positive electrode reaction and the dissolution and deposition reaction of zinc metal is used as the negative electrode reaction.



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 Engineering／Atmospheric Chemistry／
Ecosystem Production and Dynamics／Terrestrial Ecosystems Management／Aquatic Environmental Biology／

Regional Planning

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Our laboratory explores well-balanced regional developments among urban and rural areas through an appropriate evaluation and utilization of natural and social resources and tackles potential issues associated with implementation of regional planning by GIS/RS field survey. Current topics are follows:

Understanding of Regional Environments by GIS/RS

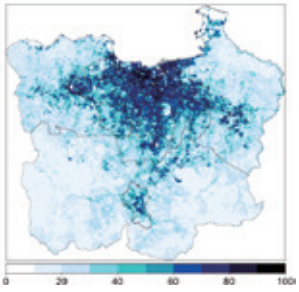
For the implementation of appropriate regional planning for managing environments, land use/cover is monitored and modelled by GIS/RS:

Monitoring of urban expansion (Indonesia); Evaluation of resilience for climate changes (India, Philippines); Spatial accuracy analysis of land cover classification; Spatial data mining of local statistical data.

Exploring sustainable developments based on field work.

Natural or social resource issues associated with the management of regional environments are explored by field work or questionnaire survey:

Land use analysis and forest resource management (Vietnam); Evaluation of social impacts of environmental conservation agriculture (Philippines); Research on connectivity of hills, humans and oceans toward sustainable development (Watersheds, Japan).



Urban monitoring in Jakarta Metropolitan area in Indonesia

Interview survey for ethnic minority in Vietnam.

Urban Infrastructure Engineering

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Practices to reduce environmental impact in addition to safety and security technologies are necessary to sustain sustainable human activities as a lifeline. It is important to develop "Holistic Engineering" integrating Design, Construction, Operation and Maintenance technologies. In order to achieve such a task, the laboratory aims to develop green technologies in conjunction with existing advanced technologies to secure urban infrastructures in terms of disaster-free and long life.

Transport and Energy Infrastructures

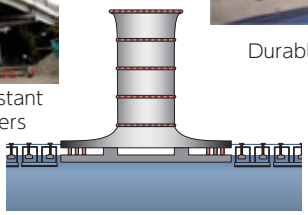
- Application of High Performance Materials to Bridge Structures
- NDE, Monitoring, Structural Integrity Evaluation and Life Prediction of Aging Steel Structures
- Development of Floating SUPG

Water and Disaster Prevention Infrastructures

- Development of Accurate and Universal Movable Bed Model
- Multi Agent Model for Evacuation Planning
- Development of Flood Risk/Largest-Class Flood Disaster Estimation Method

Earthquake-Resistant Steel Bridge Piers

Durable FRP Bridges



Floating SUPG

Sediment Transport Simulation

Risk Assessment on Water-related Disaster

Atmospheric Chemistry

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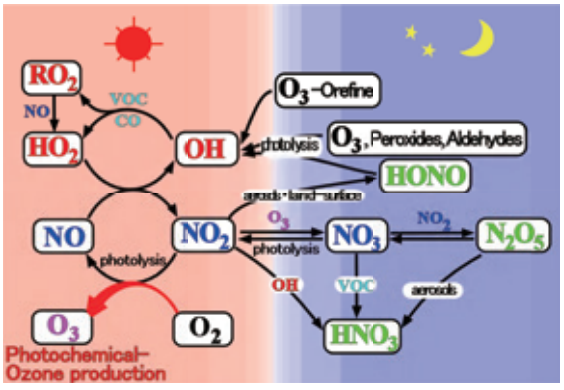
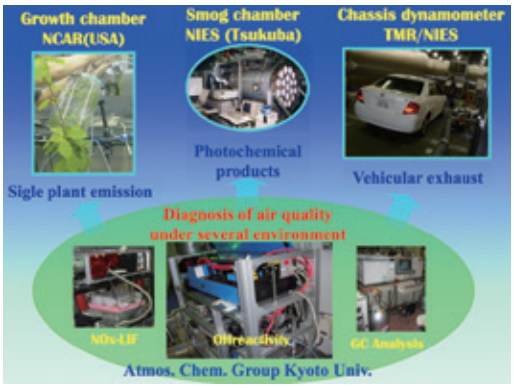
We investigate atmospheric chemistry, mainly focusing on the issue of photochemical ozone formation. Despite the apparent downward trends for both NOx and VOCs (precursors of photochemical oxidants) detected in mega-cities in many advanced countries, including Japan, photochemical oxidants have still increased in recent years.

We are trying to determine the cause of this upward trend. We are developing ultrasensitive and highly precise instruments to measure reactive trace species such as HOx radicals and NOx and we are using these instruments to obtain information about possible sources of air pollutants, such as vehicles.

Our final goal is to integrate the knowledge obtained from our observations and considerations in order to provide a sound scientific basis for the improvement of air quality.



Mechanism of oxidant formation



Research activities

Ecosystem Production and Dynamics

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We investigate dry matter production, plant community dynamics and plant ecological and physiological functions that produce the various ecosystem patterns observed in forests and other major ecosystems, based primarily on two perspectives.

First, we study structural dynamics and its mechanisms in forest ecosystems. This involves tree-ring analysis, mathematical models and ecological measurements being used in combination. Carbon dynamics and carbon accumulation in boreal forests are being studied in Canada, Finland, Estonia, Russia and Japan along with their past patterns. Boreal forests are the ecosystems where the effects of global warming are likely to appear first.

The second research approach focuses on analyzing the internal structure of stem wood. From the perspective of ecological wood anatomy and using both stable isotopes and tree eco-physiological techniques, it examines the relationships between the size and distribution of water-conducting vessels and leaf opening, shoot extension and the growth rate of trees. Trees in tropical regions, such as Thailand and Malaysia, are being examined along with those found in temperate climates.


Fig.1


Fig.2

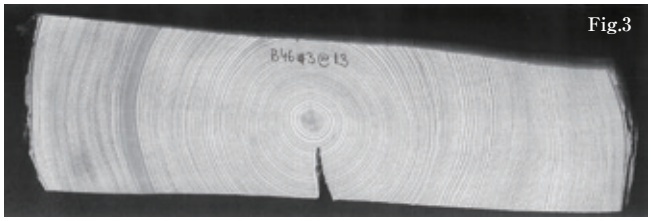
Fig.3

Fig. 1: Litter traps installed in a pine forest site in northwestern Canada
Fig. 2: A tropical seasonal forest with deciduous trees in the dry season
Fig. 3: A tree-ring sample used for estimating tree growth and past stand structure

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


Honeycomb used as a non-timber forest product (Cameroon)

Aquatic Environmental Biology

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We examine the ecology and ecological production systems of aquatic biological resources from various points of view. In particular, we investigate integrated coastal zone management, based on an understanding of the ecological relationship between terrestrial and coastal areas, including productivity and biodiversity, which are strongly affected by human activities.

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 coastal biological production systems. These concepts are then used to identify suitable methods for aquatic zone management in order to achieve future sustainable development.

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.

Management of aquatic biological resources

We examine management approaches that focus on resources produced by specific aquatic environments in local areas. We develop appropriate methods to manage resources, restore environments and enhance stocks.

Set net operation at Tai, Maizuru, Kyoto

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

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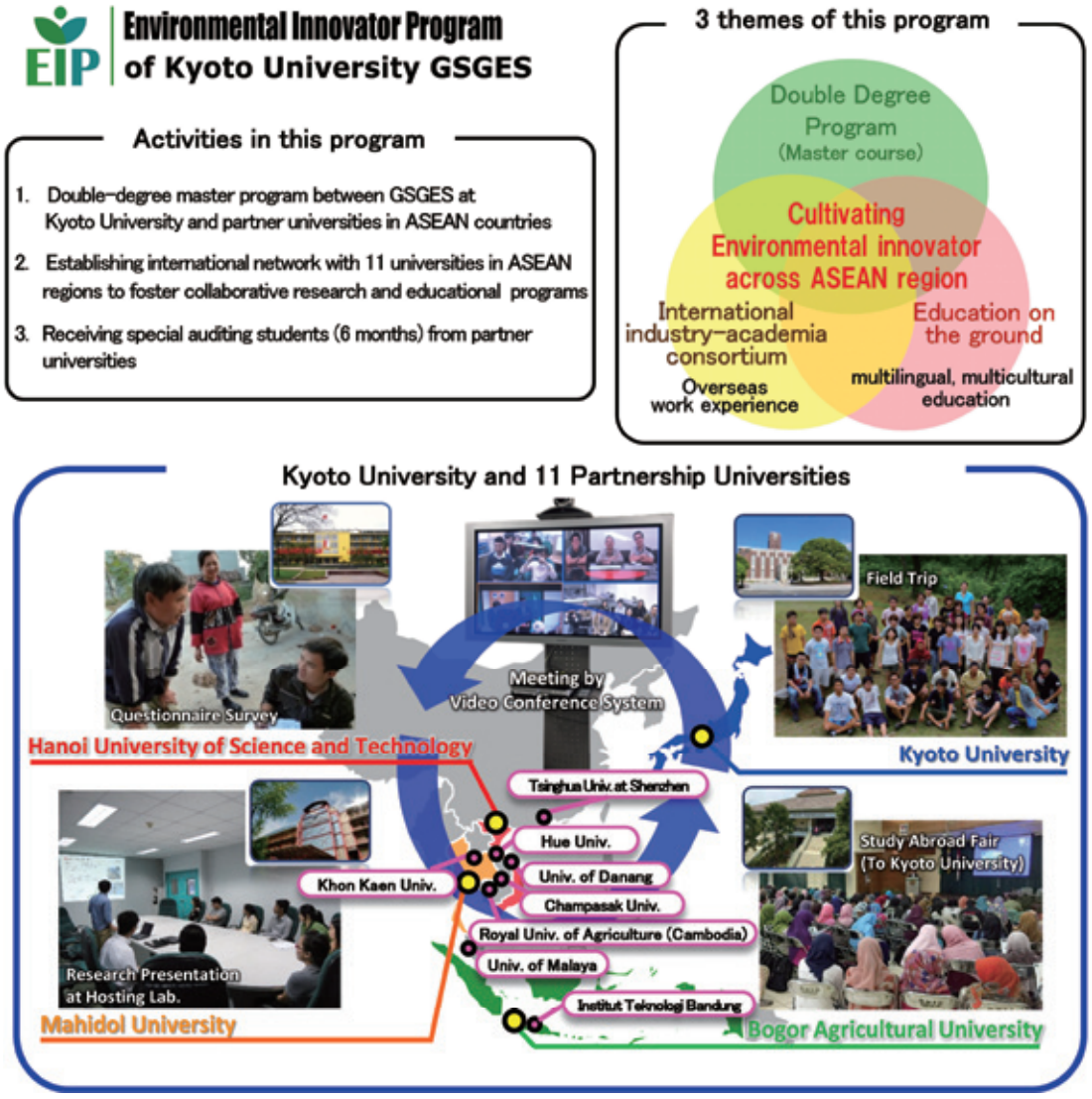
Rapid economic growth in the ASEAN region has created serious environmental and social problems, ranging from water degradation and improper waste management, to traffic congestion and deforestation.

The Environmental Innovator Program – Cultivating Environmental Leaders across ASEAN Region is a new program at GSGES, which strengthen research and educational capacity through intensive intellectual exchanges with 11 partner universities in ASEAN region. It aims to cultivate environmental innovators who will take on a leadership roles with a deep understanding of Asian cultures and advanced communication skills to tackle global environmental challenges.

One of the major components of this program are two newly launched double-degree programs with Mahidol University (Thailand) and Bogor Agricultural University (Indonesia). Students enrolled in these programs will research Global Environmental Studies at GSGES (earning a master's degree in Global Environmental Studies) with a multi-disciplinary perspective, and will also study a specific discipline at a partner university, such as environmental engineering or agriculture, for their second master's degree. The EIP program provides a unique opportunity to study not only a specific discipline but also multi-disciplinary environmental studies at the same time.



JGP Top Global University Project "Japan Gateway: Kyoto University Top Global Program" Environmental Studies

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A program, "Japan Gateway: Kyoto University Top Global Program, JGP in short)" has been organizing to conduct international joint education and double degrees with world-class partner universities prominent in research areas such as Mathematics and Chemistry that Kyoto University has significantly international competitiveness. In the area of environmental studies, Graduate School of Global Environmental Studies of Kyoto University plays a central part to prepare the way to implement interdisciplinary and practical researches to conduce towards the environmental problems, both in global and local scales. To fulfill this goal, Graduate School of Global Environmental Studies is collaborating with Graduate School of Agriculture of Kyoto University to facilitate an international joint education and double degree program. Through the global education and research work, the program is set out to encourage young researchers to obtain skills and knowledge in environmental studies so that they can be able to work on the world stage in near future.

1) International double degree program

The program has been conducting a double degree program with Gadjah Mada University, Bogor Agricultural University (Indonesia), Kasetsart University, Mahidol University (Thailand) so far. A double master degree program with Lille University (France) is planned to be implemented in the future.

2) International joint education program

The program provides various international education programs. A short study abroad program, named "International Spring School for Environmental Studies" aimed to understand the environment in Japan and learn the skills and knowledge of analysis through the field work, laboratory work and lectures was carried out for 3 years. In total 56 selected students (applicants: 186) from various universities in the world have joined and learned environmental studies under the multicultural atmosphere of Kyoto since 2016. In addition, JGP has providing opportunities for internships and research program in overseas universities for students, and receiving students from partners' universities to conduct international collaborative research. In this way, our program promote/foster internationalization, and develop environmental studies with interdisciplinary researches in multi-culture condition.

3) International research and study abroad fair

The program is also joining events on "Study Abroad Fair" and "International Symposium in Environmental Studies" in various countries in the world, i.e. Vietnam, Thailand, Tanzania etc., to promote international collaborative education and research. In addition, international collaborative studies/field work/researches have been conducted in various places.

Introducing the Faculty

Geo-environmental engineering for soil utilization and waste containment

Professor Takeshi KATSUMI
Environmental Infrastructure Engineering (Environmental Geotechnics)

Utilization of excavated soils from construction works

We conduct various construction works to build and maintain fundamental infrastructures which are necessary to our lives. For example, itthey includes transportation systems such as roads and railways, lifelines such as electricity, gas, water and sewerage, the structures near the coast, and river dikes as well. In constructingion of such infrastructures, “soils” are widely excavated and utilized as materials for leveling the ground. Since the old days, in our country, people have advanced those methods technically and systematically, and used these soils at the same construction site or another neighboring site in order to contribute to the environmental consideration, not disposing those soils just as the waste. It has been expressed as “balance the cutting and the filling”. On the other hand, recently the proper management of the toxic substances has been strictly required in society. If the soils contain toxic substances over a certain level, they have to be subject to some restrictions, which are sometimes excessive ones. In particular, if excavated soils and rocks contain arsenic, lead, fluorine and boron at a significant level, which are often contained naturally, such soils and rocks had to be disposed of as contaminated soils in many situations regardless of its excellent mechanical properties as geomaterials. Although disposal of contaminated soils might be an effective way to resolve the environmental problem at site and its neighborhood, we should also mind that those soils occupy the spaces where waste materials should be disposed of, from the perspective of the whole society. Thus, we think that utilization of such contaminated soils in roads and dikes should be promoted by applying techniques which can “immobilize” or “contain” toxic substances In our laboratory, we are conducting various studies on how to safely contain toxic substances in geostructures, which cover the development of technologies to control mass transfer such as hydraulic barrier, containment, immobilization, and sorption layers. Our studies are also related to the clarification of mobility and behavior of chemicals of concern which underlie the studies above. Furthermore, we are trying to organize and implement social systems which enable practical implementation of those technologies in real society.

Geo-environmental containment of contaminants

Waste disposal is also an important environmental consideration. In waste landfills, hydraulic barriers are installed in order to prevent soil and groundwater contamination. Earthen Soil-based barriers consisting primarily of clay, such as clay liner and soil bentonite to have low impedance against water and chemical substances, and can be expected to have long-term durability because they consist only of organic minerals. Thus, it is used not only for hydraulic barriers in waste landfills but also for containment of soil and groundwater contamination. We are working on some research related to performance and durability of such earthensoil-based barriers, and attempting to spread these techniques. Since disposal of waste containing nuclides has become an important recent challenge after the nuclear power plant accident, the shielding effect of soilearthen-based barriers against the wastes containing nuclides is also studied.

Overall, our laboratory is trying to accumulate academic knowledge related to geoenvironmental issues through various research for utilization of contaminated soils and rocks under the proper management.

The environmental issues and “politics”

Professor Wataru SANO
Public Policy

Although many researchers have been proposing superb measures and methods to resolve the environmental issues, regrettably, it seems not all of them are actually put into action. There might be various reasons, but I think one of them exists in “politics”. In spite of those policy proposals, they are disturbed by “politics”, in other words, they cannot get any backing from “politics”, so that the environmental issues have not been resolved. What is the definition of “politics” in here? There are several meanings in “politics”. For example, you understand “politics” as “conflicts of interests or a sense of value”. If so, “the environmental issues are not resolved because of the politics” may mean that “people cannot easily make a consensus because there are so many conflicts of interests or a sense of value over an environmental issues”. Or it may mean that “the issues are not resolved because only one side of the interests or a sense of value which belong to people who have strong power always take the priority”.

You can also comprehend “politics” as “aggressive leadership by the government and the politicians”. In this case, although “politics” essentially should coordinate and lead the people, goods, money, knowledge, and so on, it comes down to the weakness of “power”, that is to say “politics”, that cause the delay of the resolution for those issues. On the other hand, some people might consider “politics” as a kind of “dirty activities” such as power game over the interests. If we cannot resolve the environmental issues by those “dirty activities”, the point would be “how to resolve the issues away from such “dirty activities”.

Thus, even a single word “politics” contains such various contents. However, if you truly would like to resolve the environmental issues, it would be obvious that you cannot avoid to think about “politics”. Then next, how can we realize “politics” which enable us to resolve the environmental issues?

The theme of research and our seminar

As for the theme of my own research, to put it briefly, it is a quest for the proper style of “politics” in order to resolve the various social problems including environmental issues. If I say in more details, it is for planning the systems of politics which would enable us to make the proper policies. The word politics in here means not only the election, the Congress, or the Cabinet, but also the various conflicts and power relationship existing in the society, including the social systems such as the judiciary and administration. It may seem to be a detour to consider the resolution of the environmental issues in this broad sense of politics, but I believe this is truly the most important task in reality.

Therefore, in my laboratory, students are conducting a wide range of studies. Such as a student who is conducting a theoretical study on how the design of policy should be in democracy, or a student who is doing research on the role of government administrators in local government. In our seminar, we read a various kind of books. We sometimes read books about the difficulties which current U.S. government has, such as *The Next Government of the United States: Why Our Institutions Fall Us and How to Fix Them* (Donald Kettle, Keiso Syobo), and at other times, we read books which are reviews theoretically on Democracy, such as *Democratic Autonomy* (Henry Richardson, Oxford University Press). Although the name of subject, “The relationship between politics and the environmental issues”, is easy to say, it is truly elusive, vague and complicated, we are waiting for students who dare to deal with such difficult issues.

Environmental Refugees and Development-Induced Displacement

Associate Professor Jane SINGER
Environmental Education

Ethical concerns raised by displacement

The theme of my research is human migration and displacement. This includes development-induced displacement as well as those displaced by natural disasters or environmental changes -- flooding, desertification, deforestation, landslides, long periods of drought and rising sea levels -- often linked to climatic change, who are often called "environmental refugees."

I'm especially interested in the ethical concerns raised by displacement. The question arises of what we mean when we call people "environmental refugees," because under international law, a refugee is someone who can't return to his or her home because of a legitimate fear of persecution, civil warfare or generalized violence. A legally recognized refugee has the right to be accepted by other countries and to be provided with basic human needs. But there is as yet no legal definition of environmental refugees or clarification of their legal rights by any international legal body. From an ethical standpoint we can argue that most of those people originate in developing countries, which are not primarily responsible for emitting the greenhouse gases that are linked to climate change. Because the developed countries cause most of the emissions, under the "polluter pays" principle, don't they bear responsibility for accepting and providing for environmental refugees?

Displaced by a hydropower dam in Vietnam

I am currently involved in a research project in central Vietnam, examining ethnic minority villages displaced by construction of a hydropower dam. Many developing countries rely on cheap, plentiful hydropower to supply their growing energy needs, but dam construction too often displaces and impoverishes people.

Resettled populations may receive compensation for their original homes and land, and they may benefit from improved infrastructure, health care and educational opportunities, but this often comes at a price. Replacement land is usually much less productive than their original farm plots, so that even though they can transition from subsistence farming to cash crop agriculture and recompensed manual labor, displaced residents may no longer have basic food security for their families. For ethnic minority residents, who make up a disproportionate percentage of those displaced in Vietnam, low education and adaptive capacity makes it even more difficult to recover from the shock of resettlement.

According to a 1986 United Nations General Assembly declaration, everyone has the right to participate in and enjoy the benefits of development. In this case, some people suffer while others, particularly industry, urban areas and the rising middle class, reap the benefits of hydroelectric generation. Development-induced displacement raises ethical questions about how to apportion benefits equitably.

Traditional system to use natural resources of satoyama landscapes

Associate Professor Katsue FUKAMACHI
Landscape Ecology and Planning

The significance of investigating the traditional system of satoyama landscapes

Each satoyama landscape in Japan has a different combination of factors such as villages, arable lands, forests, and rivers. The use and the management of natural resources of the satoyama landscapes has been carried out in accordance with the relation among the forests, the local forests, and the waterside in each district. In recent years, the satoyama landscape was defined as "socio–ecological production landscapes and seascapes in Japan" (UNU-IAS, 2010). There are two components that have been researched nationwide and have been better understood. One is the style of life and activity which has been nurtured in the relationship with the nature in an area. The second is the system to use the natural resources of the satoyama landscapes which has been structured in accordance with those styles.

By identifying the traditional system of the satoyama landscape thoroughly, we came to know the significance of the satoyama landscape for its ecological benefit and the community culture. Accordingly, we are getting to comprehend the real villages, which consists of agricultural villages, mountainous villages, and fishing villages, utilizing the natural resource effectively and sustainably. It could be depicted as a process of drawing the ideal future image of the satoyama landscape by perspectives; the perspective of understanding and applying the structure and the relation of the satoyama landscape, and the perspective of making use of the history and tradition of the area. Also, the method can be considered as a cultural and ecological approach, used to find out about new skills and mechanisms in modern villages. This allows us to adopt it to the modern society while maintaining its characteristics.

Toward the future use and management of the natural resources of the satoyama landscape

There is a case, where the local residents use the space differently in accordance with its name of place and its natural and social environment. This is based on their spatial perception. They designated the sites, quantities, and frequencies by the type of natural resources so the excessive tree cutting should not cause an exhaustion or a disaster. Thus, the highly complex land ownership system and organization management have been functioning effectively. It has been reported that these efforts are well connected to the conservation of biological diversity and ecosystem which is distinct to the region.

We can observe more cases, where the essentials are well understood and the natural resources of the whole satoyama landscape have been used and managed properly and sustainably. The scenes of people's daily lives, recreations, working, and the religious activities have been connected organically by roads and channels, and as time went by, its important areas and transportation networks have been utilized as a space for work and religion. Also the lands which include the boundary space against the other village have been used as the common lands to keep its area and its resources sustainable, and moreover, their limited natural resources have been distributed as fairly as possible. When local resident use the space differently in accordance with the situation and implementing their own rules and systems, it also has another meaning, that is to say, a risk management where the satoyama landscape make preparations and adopt itself to the disasters such as a flood or slope failure.

On the other hand, as the circumstance of its society has got changed, the convention mechanism of the satoyama landscape has also changed largely, and what is more, it is becoming a mere shell or is disappearing. The relation between the district and its natural environment and its natural resources has also changed, and the districts have various problems. The number of lands whose owners are unknown or managed by nobody have also increased, and the problems concerning the regional disaster prevention or the prevention of the biological diversity have been occurred. In order to deal with these problems, it is crucial to structure a system for the use and management of natural resources in the framework of a landscape including the whole area of the districts, and it is essential to understand the local forest by its peculiarity as well as its universality.

Introducing the Laboratories

Research Laboratory Profile: Professor Makoto USAMI

Global Environmental Policy, Department of Global Ecology

—What kind of research do you do, Professor Usami?

I do research on legal philosophy in connection with environmental issues. I approach environmental problems and policies from the perspective of justice, with a particular interest in expanding the applicable scope of this ideal. People of the same era share straightforward rules of justice, such as the principle that items borrowed should be returned. But what about those of different generations? Given that future people will be adversely impacted by the environmental degradation we cause today, we can conceive an obligation for the current generation to act with consideration for future generations. On the other hand, what is the reason for obliging the current government to use its citizens' money on policies for the benefit of people in the distant future long after we ourselves have departed, such as 500 or 1,000 years from now? One of my research interests is to explore environmental problems and policies from the viewpoint of intergenerational justice. I am also interested in the issue of apportionment beyond national borders. For example, the tensions between developed and developing countries over the reduction of CO_2 emissions show that climate change is a question of global justice. Climate justice, which is the subject of much research in the international academic community in recent years, thus encompasses the dual facets of intergenerational justice and global justice.

—How do you run your laboratory?

Currently there are seven Doctoral students, 11 Master's students, and four research students in my laboratory. I have six international students from China, two from Indonesia, one from South Korea, one from Switzerland, and one from Bangladesh. We use a mixture of English and Japanese in our seminars. The large number of international students is a feature of the School of Global Environmental Studies, and I think that engaging in discussions and interactions with these students offers great stimulation to our Japanese students, too. There are three pillars to research supervision in my laboratory: (1) individual consultations of approximately one hour each, held periodically; (2) seminars, held on an ad hoc basis; (3) joint seminars with other research laboratories in the social sciences, held bi-annually. (2) and (3) involve presentations and discussions among graduate students of many different disciplines and specializations, enabling my students to gain feedback from a variety of angles and delve deeper into their own research.

—Tell us about your graduate students' research.

My current students are engaged in an extremely diverse range of research projects, including psychological exploration of motivations for citizens to purchase green products, inquiry into indigenous people's attitudes toward the commodification of genetic resource in Indonesia, econometrical analysis of the development of solar panel technology in South Korea, case study of climate change adaptation projects in Africa, legal research on international treaties on radioactive waste, and theoretical analysis of climate justice.

— (Question to Ms. Cita Ekanijati an international student from Indonesia who presented at Professor Usami's laboratory research reporting session on January 26, 2016) Tell us what motivated you to study in Professor Usami's laboratory and about the School of Global Environmental Studies.

Cita: I study environmental policy under Professor Usami. Both the Professor and the other graduate students provide valuable comments to support my research, and the laboratory also has many books and other materials. In Indonesia, it is not common for students to learn directly from a professor. The access to direct, attentive professorial supervision is one of the great attractions of the School of Global Environmental Studies. The School also has systems that provide students with financial support for projects, internships and participation in international conferences. I hope to become a university faculty member when I return to Indonesia.

—Interviewer's Postscript

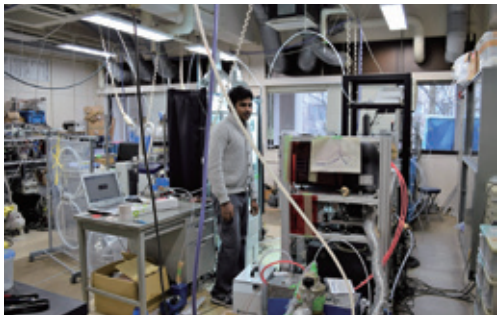
Environmental problems have been recognized as global-level challenges for many years now, but these problems are broad-ranging not only in spatial terms but in temporal terms as well. To what extent can we share common rules and ethics in relation to such multi-dimensional problems? The basis for addressing the question of responsibility beyond generations may already exist within Asian societies, but the design of actual institutions for this purpose is still a work in progress. Furthermore, achieving global consensus on how to deal with environmental problems requires not only the reconciliation of different value outlooks but also the striking of political and economic bargains. Professor Usami has an open, global laboratory that reflects precisely these challenges. (Ayako IWATANI)

Research Laboratory Profile: Professor Yoshizumi KAJII

Atmospheric Chemistry, Department of Natural Resources

—What kind of research do you do, Professor Kajii?

I specialize in atmospheric chemistry. My research involves detecting and evaluating atmospheric substances and shedding light on the mechanisms of atmospheric pollution. In the 1970s, atmospheric pollution became a serious social problem in Japan as well. Photochemical smog is caused by substances known as oxidants, which are formed when nitrogen oxides (NOx) found in gas emissions react with volatile organic compounds (VOCs) in the atmosphere. Japan achieved a reduction in oxidants in the 1980s, as a result of factors such as the impact of the Air Pollution Control Act and combined public and private sector efforts to keep the air clean. Since the 1990s, however, oxidants have been increasing once more, and identifying the cause of this increase has become an urgent priority. Oxidant concentrations tend to be higher in spring and lower in summer, meaning that the ongoing increase cannot be attributed simply to long range transport of pollutants such as PM2.5 from China. There is thus a need to detect both oxidants and the VOCs from which PM2.5 particles and oxidants are formed, but it is extremely difficult to identify them given that there are between 500 and 2000 different types of VOC. We have focused our attention on substances known as OH radicals. When they react with VOCs in the atmosphere, OH radicals form stable H_2O molecules and dissipate. Measuring the speed of such dissipation yields data corresponding to the overall volume of atmospheric VOCs. In our research lab, we have a hand-made device that uses laser technique to create OH radicals artificially and causes them to react with compounds in the atmosphere. Working in partnership with the National Institute for Environmental Studies and other universities, we use this device to measure atmospheric compounds in order to gain our understanding of the chemistry in the air.



—How do you run your laboratory?

My laboratory currently has two Program-Specific Researchers, one Master's student, and one Doctoral student in the Graduate School of Human and Environmental Studies, and five Master's students in the Graduate School of Global Environmental Studies. Each morning at 9:30, Program-Specific Researchers and the Doctoral students gather with my Assistant Professor, Yosuke Sakamoto, for a brief meeting. Once a week, a seminar is held for undergraduate and graduate students, where we report on the progress of our research. Once every half-year, all graduate students make presentations

on their research. We also hold journal meetings to review the latest academic journals, including a monthly joint journal meeting with the laboratory of Professor Masahito Sugimoto (Aquatic Chemistry, Graduate School of Human and Environmental Studies). There is also a weekly workshop organized by the graduate students themselves, with study activities including thematic summary of books in the field of atmospheric chemistry.

— (Question to the graduate students gathered in the laboratory) Tell us about your research.

Student A: I am studying in Professor Kajii's laboratory because I want to deepen my interest in atmospheric pollution.

Student B: I am interested in automobiles, and I do research on exhaust gases.

Student C: I am researching the mobility of substances in the environment.

Student D: My motivation was the Kyoto Protocol. CO_2 is said to be the cause of global warming, but there may be other factors as well. That is what I am researching.

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

"Free" might be the best word. We can choose our own research topics freely, and we are allowed to do our research in the manner in which we choose. I was even able to do research overseas, in Vietnam, when writing my Master's thesis. It was a great learning experience.

—Interviewer's Postscript

I gained a sense of the "freedom" of Professor Kajii's laboratory even during my own brief visit there. Despite my status as a complete stranger to his academic field, Professor Kajii took the time to explain his research to me carefully and coherently. The innovative, cutting-edge content of his research seemed to strike a great contrast with the hand-made device fitted with a profusion of pipes and the adjacent case full of plants used in the measurement of VOCs. In Professor Kajii's lab, today is another day in the ongoing search for solutions to environmental problems through the power of science. (Ayako IWATANI)

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 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.

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. 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.

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), TOEFL PBT, TOEIC SP or IELTS test scores) and interview performance (specialized knowledge of the applicant's chosen study area and presentation of a research plan).

Master's Program in Environmental Management

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

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

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 one to two months for students whose research objectives are best achieved through brief practical experience. (For short-term internships, the submission of preliminary thesis work 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), TOEFL PBT, TOEIC SP, or IELTS test scores), general knowledge of the global environment, basic knowledge of the applicant's choice of study area and interviews (to assess specialized knowledge gained over the course of the undergraduate program, the study plan, and the applicant's suitability for the master's program).

Doctoral Program in Environmental Management

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

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

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), TOEFL PBT, TOEIC SP, or IELTS test scores) and interview performance (to assess relevant research skills and specialized knowledge gained over the course of master's study or practical achievement in relation to environmental management, as well as their research plan for the doctoral program).

*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 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.

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.

Global Environmental Studies (Doctor)

Cultivate internationally active researchers addressing regional and global environmental problems with interdisciplinary perspectives and methodologies.

Educational Goal

Criteria for Doctor's Degree

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.

Dissertation Submission, Defense, and Review **Courses and Seminars & 2nd Progress Report** (Advanced Exercise and Seminars in Global Environmental Studies IIa)	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**

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.

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

Adzani A. Ameridyani

Bandung, Indonesia　Laboratory of Regional Planning

Being a student in Graduate School of The Global Environmental Studies (GSGES) has been an eye-opening experience for me. GSGES forearms the students with a comprehensive perspective to tackle global environmental problems while considering local resources. We learn a broad range of disciplines, because in environmental issues many aspects are tangled together. GSGES incorporates science, engineering, and socio-economic aspects in the study process. Moreover, since students in GSGES have different background, disciplinary, and diverse cultures, it allows us to have rich sources of knowledge and point of views from all different parts of the world. To make sure that there is an adequate platform for knowledge exchange between students, most of the classes in GSGES encourage students to form group discussions. Of course it can be challenging sometimes to adapt with something we are unfamiliar with and to understand various subjects far from our research interest, but it will motivate us to be more creative and mature as a researcher.

GSGES also has an internship program as one of its compulsory subjects, which helps the student to develop their practical ability and expands students' opportunity after graduation. Students are allowed to manage their internship strategy, according to their target in the future. Some students are focusing their internship program to support their thesis; the others use the opportunity to equip themselves for their professional career after graduation. All in all, GSGES is for you who embrace pro-active and independent learning experience, along with vibrant culture among the students.

VOICE 2

Weerach Charerntantanakul

Master's Program, Landscape Ecology and Planning

Graduate School of Global Environmental Studies (GSGES) provides a broad view of global environmental issues through perspectives of various study fields. The course requires all students, regardless of their background, to study a brief introduction to all academic fields related to environmental studies, including economics, humanities, agriculture, and engineering, yet students can still choose to dig deeper into their own fields of interest. Discussions and group works with friends from various fields and nationalities was also a good opportunity to broaden my perspectives of how I see existing environmental issues and their solutions. The field training provides basics of how researches in each field are conducted, so I can better understand the researches in other fields out of my own specialization, which I think it is essential for researchers dealing with global environmental issues.

The internship program is also another special requirement of this graduate school. The internship program provides great opportunity to a deeper practical lessons for research works in our own research fields. In my case, I have been to Indonesia for three months for the internship program, which has been a precious experience for my research and my life.

I truly appreciate every lessons I achieved through the course works and internship opportunities provided by GSGES during my first year in this graduate school. In conclusion, I think that GSGES provides great opportunities to study a broad range of lessons while deepen knowledges in my own field of interest at the same time, and also a valuable practical lessons and life experiences, which have made this graduate school became a significant step of my study life.

VOICE 3

Mari Miyaji

Doctoral Program in Global Environmental Studies
Global Environmental Architecture

There is a wide range of laboratories in the School of Global Environmental Studies, including engineering, agriculture, economics and management. Because there are so many opportunities to get involved in research projects that straddle more than one laboratory, you can gain the skills to grasp things from diverse perspectives rather than just your own area of expertise. Up through my Master's Program, I was in the Graduate School of Engineering where I did not have many opportunities to interact with laboratories and students in other fields. Therefore, it is refreshing to be in the School of Environmental Studies, where I can have daily discussions with people from other fields, and I find that every day is very stimulating. Also, there are many international students at the school, so it is an assemblage of people with a variety of religions, cultures, and customs. By spending our days together in the laboratory, it gives us more opportunities to discuss our cultural differences, and I feel that has broadened my perspective.

Since I am majoring in Global Environmental Studies, training internships are not required, but I am conducting my research based on practical activities such as carrying out questionnaire surveys and conducting surveys of actual buildings in Japan and abroad as well as holding workshops. My work in developing countries with different cultures and customs has been a process of trial and error, but it has been a valuable opportunity to cultivate in-the-field management skills and the ability to adapt, which are skills you cannot get through classroom learning. I think the fact that you can carry out research based on practical activities is one of the distinctive characteristics of this school.

I believe this school is a place that allows you to gain the diverse viewpoints and broad perspective necessary to become a researcher who is active in the international community, and it lets you acquire project management skills through hands-on activities.

Voices from Graduate Students

Graduated from Master's Program (2017)

Tomohiro AOKI

Community-Reactivating Cooperator Squad (Minabe Town Hall)

I entered the School of Global Environmental Studies with the idea of "I want to create a system that draws out the appeal of rural areas and increases their vitality!"

In the Laboratory of Sustainable Rural Development, I learned methods for community building, and at the same time I was able to directly go to local communities in Japan and abroad and experience real community-building sites where specialized know-how was being applied. In particular, through the school's internship program, I stayed in a rural area and felt firsthand the conditions in the community from the perspective of its residents. Increasing the vitality of the local community requires that "industry (companies), academia (research institutes), government (national and local governments), and the people (local residents)" come together as one and work cooperatively, and I learned that the function of "intermediaries" is vital in order to coordinate that cooperation among them.

Since graduating from the school, I have been working as a member of the Community-Reactivating Cooperator Squad of Minabe, a town located in the Hidaka District of Wakayama Prefecture, building a model for a system that is based on cooperation among each constituent of the "industry-academia-government-people" partnership and that will lead to boosting the local community's vitality. I am proactively going to the site of community activities, interacting with the people from the town hall and from the community, and as I build trust with both sides, I am starting to fulfill that "intermediary" function between "government and people." Furthermore, along with regular consultations and interaction with people from research institutes at the School of Global Environmental Studies and elsewhere, I am starting to make progress on strengthening "academia-people" cooperation by carrying out activities aimed at getting advice from the perspective of experts. Step by step, I am getting closer to my objective of creating a "system to increase the vitality of the local community."

I believe the internship system that provided a firsthand feel for the atmosphere at the site and the group discussions that permitted debates which transcended the frameworks of "field, nationality, and teacher/student" have been extremely useful in allowing me to smoothly implement these types of community activities. The School of Global Environmental Studies is appealing in as much as you have the opportunity to interact with so many enthusiastic teachers and fellow classmates from Japan and abroad, and it is possible to gain broad-based, systematic knowledge and to take on the challenge of every sort of research field in Japan and abroad, which opens up limitless possibilities for your own future.

Graduated from Master's Program (2009)

Takumi MIYAZAKI

Bank of Tokyo-Mitsubishi UFJ (temporarily transferred from Osaka Gas)

Since graduating from the School of Global Environmental Studies, I have been working for a gas company, handling the development of energy infrastructures such as domestic and foreign resources, as well as power plants. I have had the good fortune to have opportunities like being posted to our subsidiary in the UK and being temporarily transferred to a financial institution; and while it is hard work, I feel like I am pursuing a fulfilling career.

The two years I spent at the School of Global Environmental Studies unquestionably built my foundation. My interactions with international students at the school and the internship system that allowed me to work in a research laboratory at a British university gave me the opportunity to turn my attention to the world. Also, within the numerous unique programs, by studying hard together with my classmates who had diverse values and backgrounds, it made me realize how narrow my own perspective was. I feel that it has enabled me to persistently work to discover solutions when I have been placed in various environments.

Even now, I ask myself daily whether I am really embodying the ideals of the School of Global Environment, but the stimulation I received from my classmates as well as senior and junior fellow students who live earnestly without turning their back on their own beliefs still energizes me today. Global environmental issues are extremely difficult problems, but if you are thinking that you want to contribute to the solutions through your work, then by all means, I hope you will consider enrolling in the School of Global Environmental Studies.

Graduated from Master's Program (2017)

IM SOPHANAVY

Cambodia-Japan Cooperation Center
Phnom Penh, Cambodia

Life in Japan, as well as in my graduate school (GSGES) provides me many new experiences, and knowledges. I am impressed by GSGES program because of sharing opportunity, field trip, and internship program.

Students are allowed to share their knowledge and understanding through group discussions, presentations, and assignments. I have learned a lot from different kinds of presentations, such as presentation in graduate school, joint laboratory, and my own laboratory. In addition, my research topic was improved by the comments of professors and participants.

I am not only provided theoretical base, but also practical based program. Field trip to Tango is memorable experience to me to collect ocean creatures and to identify their ages; in addition, I have learned how to distinguish soil types and measure tree dimensions.

Internship is another interesting activity. I could build good networks with internship hosting institution, and I learned about the reality of working with Cambodian government institution. Besides assisting administrative staff to organize seminars and workshops, I took internship opportunity to do field survey to collect data for my thesis. To collect data, I have prepared questionnaire to interview community. Internship is a good opportunity to reach targeted community and access to data for my research topic.

GSGES has provided me a good opportunity to learn, improve, and share knowledge through presentations, field trips, and an internship. I am now working as a coordinator in Cambodia-Japan Cooperation Center (CJCC) in Phnom Penh Cambodia.

Graduated from Master's Program (2012) and Doctoral Program (2016)

Mai KOBAYASHI

Researcher, Research Institute for Humanity and Nature

Having lived overseas for a long time, I wanted to study environmental issues in the Japanese context and under the guidance of teachers who emphasize practice. I did not want to live in Tokyo, and I looked forward to studying at a graduate school with an open environment like Sansai Gakurin (Grove of Universal Learning). During my Master's Program at the school, I spent many days struggling to improve my rusty writing skills while working on my compulsory subjects. I had many opportunities in class and through joint projects to interact with my fellow classmates, and that generated a strong sense of camaraderie. It was also a time when I had the luxury of meeting lots of people from different cultural areas and learning a great deal from each individual's awareness of issues, different perceptions, and dreams. As environmental issues become more serious with each passing year, the very fact that this is a cross-sectoral experiment with no predetermined answers to certain questions—such as what the issue is, how the threat should be understood, or how solutions should be shared—tested our communication skills as we tried to understand one another. I often had the feeling that the school's students, who came together with an eye to diversity and a sense of a need for integration, possessed a new type of imagination that was a bit different from the teachers as well, who have produced exceptional results in the context of the traditional academic framework. This urgent new field requires an appropriate, flexible imagination. I moved on to the Doctoral Program, and since graduating, I have been working as a project researcher at the Research Institute for Humanity and Nature, where I was fortunate enough to work as an intern during my Master's Program. There, I have continued my research on organic agriculture policy in Bhutan—a field that I was able to enter thanks to my work at the school—as well as on the future of sustainable food.

Sansai Gakurin

Sansai Gakurin was established in 2002 to promote and support the 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

To broaden knowledge of global environmental studies at Kyoto University, Sansai Gakurin holds regular events such as the 'Kyoto University Forum (global environmental forum)' and the 'Hannari Kyoto Shimadaijuku' (each three times a year), and organizes lecture/discussion gatherings by faculty open to all students and faculty. In addition, Sansai Gakurin co-organizes public international seminars and forums related to the Graduate School of Global Environmental Studies (GSGES), and collaborates with organizations within Kyoto city to engage the public over environmental concerns.

2) Activities designed to promote research

Sansai Gakurin supports innovative medium- and long-term research by the GSGES faculty to integrate the research activities from diverse fields and support achieving a more harmonious balance of man and nature.

Sansai Gakurin also regularly publishes the Sansai Newsletter to promote GSGES activities.

3) Activities designed to support education

Sansai Gakurin supports various ongoing international education programs by GSGES faculty.

Recent Collaborating Institutions for Internship Study

Private enterprise

- Aoi Consultants Co., Ltd
- OKUMURA CORPORATION
- SANKI ENGINEERING CO.,LTD.
- Research Institute for Natural Capital Co.,Ltd
- KANSO CO.,LTD.
- DENSO CORPORATION
- NIPPON KOEI CO., LTD.
- YAMADA　FARM
- LAGO Co.,Ltd
- LINK Co.,LTD.

country/the local government

- Kinki Regional Environment Office
- Construction Bureau Greenery Policy Promotion Office
- KYOTOFU DISASTER VOLUNTEER CENTER
- National Institute for Land and Infrastructure Management, MLIT, JAPAN
- Lake Biwa Environmental Research Institute
- Tsushima City
- NAKAGAWA JICHISHINKOKYOGIKAI
- Katsuragi-chō Wakayama-ken

NPO/NGO、etc.

- IKAW-AKO foundation
- NPO EGAOSTUNAGETE
- Green Grass NPO
- KIKO Network
- LEAF - Learning and Ecological Activities Foundation for Children
- Satoyama Net AYABE
- NPO SHINRINGAKKOU MORINKO
- Japan Association of Drainage and Environment
- Institute for Sustainable Energy Policies (ISEP)
- Certified NPO Organization FURUSATOKAIKICENTER

Various corporation / research organizations

- Kitakyushu Urban Centre
- Global Environmental Forum (GEF)
- Central Research Institute of Electric Power Industry
- Japan Environmental Sanitation Center (JESC)
- Japan Center for a Sustainable Environment and Society
- Aeon Environmental Foundation
- Northwest Pacific Region Environmental Cooperation Center
- KYOTO CITY GREENERY ASSOCIATION
- Nippon International Cooperation for Community Development（NICCO）
- Institute for Global Environmental Strategies (IGES)
- National Institute for Environmental Studies
- National Institute of Advanced Industrial Science and Technology（AIST）
- Japan International Research Center for Agricultural Sciences(JIRCAS)
- The United Nations University Institute for the Advanced Study of Sustainability, Operating Unit Ishikawa Kanazawa (UNU-IAS OUIK)
- Center for Environmental Remote Sensing Chiba University
- Japan International Cooperation Agency (JICA)
- Research Institute for Humanity and Nature

international organization /overseas

- Kazakh National Agrarian University
- Kasetsart University
- University of California, San Diego
- Cooperative Research and Education Center for Environmental Technology Kyoto University-Tsinghua University
- University College Cork
- National Taiwan University
- National University of Life and Environmental Sciences of Ukraine
- Institute for the Advanced Study of Sustainability (UNU-IAS)
- United Nations Development Programme (UNDP)　Indonesia
- National Taiwan University Building & Planning Foundation
- Jomo Kenyatta University of Agriculture and Technology (JKUAT)
- Singapore Zoo
- Danang University of Technology (DUT)
- The University of Da Nang
- Tallinn University
- Chiang Mai University
- Chulalongkorn University
- Hanoi University of Science and Technology
- University of Hawaii at Manoa
- Bandun Institute of Technology (ITB)
- University of the Philippines Los Baños
- University of Agriculture and Forestry, Hue University
- Hue University
- Beijing Normal University
- Bogor Agricultural University
- Mahidol University
- Mandalay Technological University
- University of South Australia
- University of Modena and Reggio Emilia
- Yangon Technological University
- University of Science and Technology at Lille1
- Lille University
- Arkomjogia(Jog j a Community Architects)
- ASEAN Centre for Biodiversity
- University of CAEN and Ifsttar Nantes
- Center for International Forestry Research(CIFOR)
- Chiang Mai University, Regional Center for Social Science and Sustainable Development
- Conservation International
- CREAMAP
- Cumbria Action for Sustainability
- Danang City Government
- Department of Architecture, University of Indonesia
- ecoBali Recycling
- Energy Research Institute, Chulalongkorn University, Thailand
- Environment and Public Health Organization (ENPHO)
- Faculty of Engineering – Andalas University
- Hue College of Sciences
- IFFSTAR
- Indonesia Joint Crediting Mechanism Secretariat (JCM)
- Institute of Ecology-DRPM-Universitas Padjadjaran
- IRSTA, Bordeaux research center
- Ministry of Education in Vanuatu
- Myanmar Engineering Society
- National Parks Board, Singapore (NParks).
- Papua New Guinea Forest Authority
- Para La Tierra
- PlanEnergi
- Quang Nam University
- Renewable Energy Management Bureau, Philippine Department of Energy (REMB)
- Resilience Development Initiative
- Scotland Rural College
- SEEDS Asia
- SPREP (Secretariat of the Pacific Regional Environment Programme)
- The International Cooperation Department of the University of Danang
- Tarlac State University
- Tiyeni Organization
- UNDP Cambodia
- UNESCO Bangkok
- UNICEF
- University of Gloucestershire
- University of Jambi
- University of the South Pacific, School of Government, Development and International Affairs
- WWF Malaysia Sarawak Office
- Yang-Ming University, Institute of Philosophy of Mind and Cognition

After Graduation

Master's Program in Environmental Management

Private Sector

- ALMEC CORPORATION
- EXEDY Corporation
- EX Research Institute Ltd.
- NTT DATA Corporation
- OBAYASHI CORPORATION
- Oriental Consultants Co., LTD.
- KANAE CORPORATION
- Kubota Corporation
- KURARAY CO., LTD.
- CTI Engineering International Co., Ltd. (CTII)
- Japan Bank for International Cooperation (JBIC)
- CyberAgent, Inc.
- XYMAX Corporation
- SANYU CO.,LTD.
- Sanyu Consultants Inc.
- GLION Co.,Ltd.
- TSP CO., LTD.
- DeNA Co., Ltd.
- DENSO CORPORATION
- DENTSU INC.
- TOYOTA INDUSTRIES CORPORATION
- Nihon Suido Consultants Co., Ltd.
- Development Bank of Japan Inc. (DBJ)
- Nomura Research Institute, Ltd. (NRI)
- Hakuhodo Consulting Inc.
- Business Consultants, Inc. (BCon)
- Hitachi, Ltd.
- Hitachi Solutions, Ltd.
- Fujitsu General Limited
- Funai Soken Holdings Inc.
- Sumitomo Mitsui Banking Corporation
- Milbon Co., Ltd.
- Montbell Co., Ltd.
- Laplace Systems Co., Ltd.
- LIXIL Group Corporation
- ROKI Co., Ltd.
- Works Applications Co., Ltd.
- Accenture Japan Ltd
- Esri Japan Corporation.
- AEON RETAIL CO., LTD.
- Ishizaka Inc.
- IDEA Consultants, Inc.
- INTERNET BUSINESS JAPAN Co.,Ltd.
- NTC INTERNATIONAL CO., LTD.
- NTT Communications Corporation
- KAJIMA CORPORATION
- Kansai Coke and Chemicals Company,Limited
- KEYENCE SOFTWARE CORPORATION
- KISOJIBAN
- Kyoto University
- KYOWA HAKKO BIO CO. LTD.
- Coca-Cola Bottlers Japan Inc.
- Kokusai Kogyo Co., Ltd.
- INPEX CORPORATION
- JX Nippon Mining & Metals Corporation
- SHIMIZU CORPORATION
- SHOWA SHELL SEKIYU K. K.
- Sumitomo Forestry Co.,Ltd.
- Swing Corporation
- SEKISUI CHEMICAL CO.,LTD.
- National Federation of Agricultural Cooperative Associations
- SoftBank Group Corp.
- DAIKEN CORPORATION
- TAISEI CORPORATION
- CHUBU Electric Power Co.,Inc.
- Chiyoda Corporation
- TSUKISHIMA KIKAI CO., LTD.
- Central Japan Railway Company
- Tokio Marine & Nichido Fire Insurance Co., Ltd.
- TOKYO GAS Co.,Ltd.
- Tokyo Electric Power Company Holdings, Inc.
- Toyo Engineering Corporation
- TODA CORPORATION
- Toyota Tsusho Corporation
- West Japan Railway Company
- JGC CORPORATION
- Nippon Koei Co., Ltd.
- Japanese Consumers' Cooperative Union
- NIPPON TELENET CORPORATION
- NEC Corporation
- Norinchukin Bank
- PACIFIC CONSULTANTS CO., LTD.
- Panasonic Corporation
- HANEDA AIRPOER SERVICE CO., LTD.
- Value Frontier Co.,Ltd.
- PIAPIA COMMUNITY SUPPORT G K.
- Hitachi Zosen Corporation
- The Procter&Gamble Company of Japan Limited
- McKinsey & Company
- MITSUI & Co., Ltd.
- MITSUBISHI MOTORS CORPORATION
- Mitsubishi Corporation
- Yahoo Japan Corporation
- Janssen Pharmaceutical K.K.
- Rakuten, Inc.
- Rinnai Corporation
- YUGENGAISHA AZUSAKOUMUTEN

Corporate Organization

- KYODO NEWS
- KENSETSUGIJYUTSU KENKYUSHO
- Gotoh Educational Corporation
- Japan Science & Technology Agency (JST)
- National Institute for Environmental Studies
- New Energy and Industrial Technology Development Organization (NEDO)
- Research Institute for Humanity and Nature
- Japan International Cooperation Agency(JICA)
- Japan Foundation
- Japan Railway Construction, Transport and Technology Agency
- Japan External Trade Organization(JETRO)

Ministry/Local Government

- Ministry of the Environment
- Ministry of Economy, Trade and Industry
- Nuclear Regulation Authority
- Shiga Prefecture
- Tsushima City
- Toyonaka City
- Nagoya City
- Ministry of Agriculture, Forestry and Fisheries
- Hiroshima City
- Forestry Agency

Overseas

- Faculty of Social and Politics
- Hue University of Sciences
- King Mongkut's Institute of Technology Ladkrabang
- Land titling office
- Ministry of Housing and Public Works
- Semarang State University
- State ministry for national Development planning
- Ti Rayon Soleil
- Wildlife Conservation Society
- School of Urban Rail Translation
- Universiti Sains Malaysia
- Hanoi University of Science and Technology
- Institut Teknologi BANDUNG
- RenEnergy

Ph.D Program

- KYOTO UNIVERSITY
- OKAYAMA UNIVERSITY

Doctoral Program

- Amami Wildlife Center
- Institute of Noto Satoumi Education and Studies
- KAJIMA CORPORATION
- Research Institute for Natural Capital Co., Ltd
- TOSHIBA CORPORATION
- HASEKO Corporation
- Royal University of Agriculture
- Kyushu University
- United Nations Environment Programme
- National Institute for Environmental Studies
- National Research and Development Agency Public Works Research Institute
- United Nations Development Programme
- United Nations Secretariat for International Strategy for Disaster Reduction (UNISDR)
- United Nations University- IAS
- Ernst & Young ShinNihon LLC
- Sumitomo Forestry Co., Ltd.
- Research Institute for Humanity and Nature
- The University of Tokyo
- Chinese Academy of Fishery Sciences
- Japan International Cooperation Agency(JICA)
- Japan Society for the Promotion of Science
- NIPPON TELENET CORPORATION KICK Smart Life Laboratories
- Bangladesh Agricultural University
- Mahidol University
- The University of Melbourne
- Asian Disaster Preparedness Center [ADPC]
- Bogor Agricultural University
- Hanoi University of Natural Resources and Environment
- Hanoi University of Science and Technology
- Hue University
- Hue University of Sciences
- Institut Teknologi BANDUNG
- King Mongkuts Institute of Technology Ladkrabang
- Kyoto University
- Malaysian Medical Relief Society (MERCY Malaysia)
- Ministry of Public Works and Housing (MPWH)
- School of Urban Rail Translation
- Thuyloi University
- University of Danang
- University of Transport and Communications

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Professor Makoto USAMI

Environmental Economics
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Sustainable Rural Development
Professor Satoshi HOSHINO
Assistant Professor Kenichirou ONITSUKA

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Associate Professor Kayo UEDA
Assistant Professor Akiko HONDA

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Professor Wataru SANO
Associate Professor Ayako IWATANI

Environmental Marketing Management
Associate Professor Akira YOSHINO

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Assistant Professor Atsushi TAKAI

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Assistant Professor Chiho OCHIAI

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Assistant Professor Kohei MIYAZAKI

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Assistant Professor Narumasa TSUTSUMIDA

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Associate Professor Naoki OKADA
Assistant Professor Masako DANNOURA

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Professor Shinya FUNAKAWA
Associate Professor Hitoshi SHINJO
Assistant Professor Tetsuhiro WATANABE

Aquatic Environmental Biology
Professor Yoh YAMASHITA
Assistant Professor Keita SUZUKI

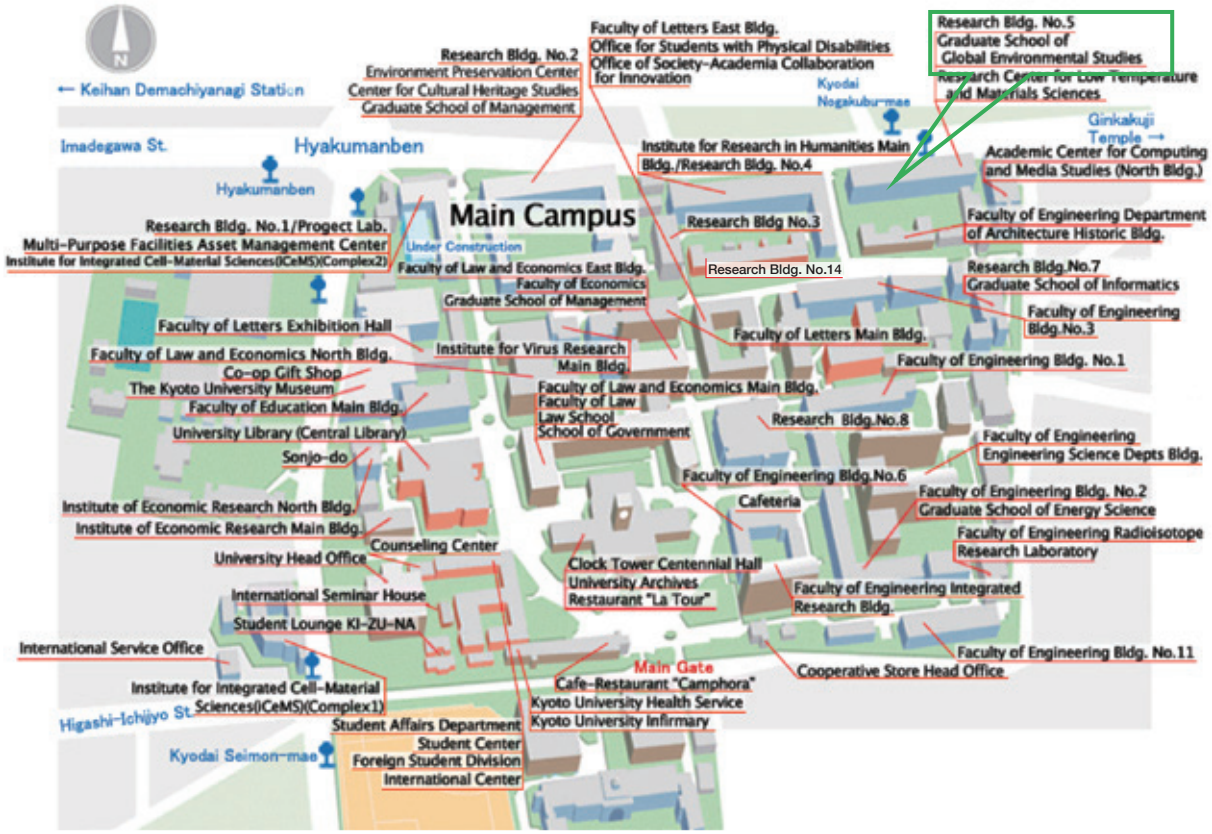
Project

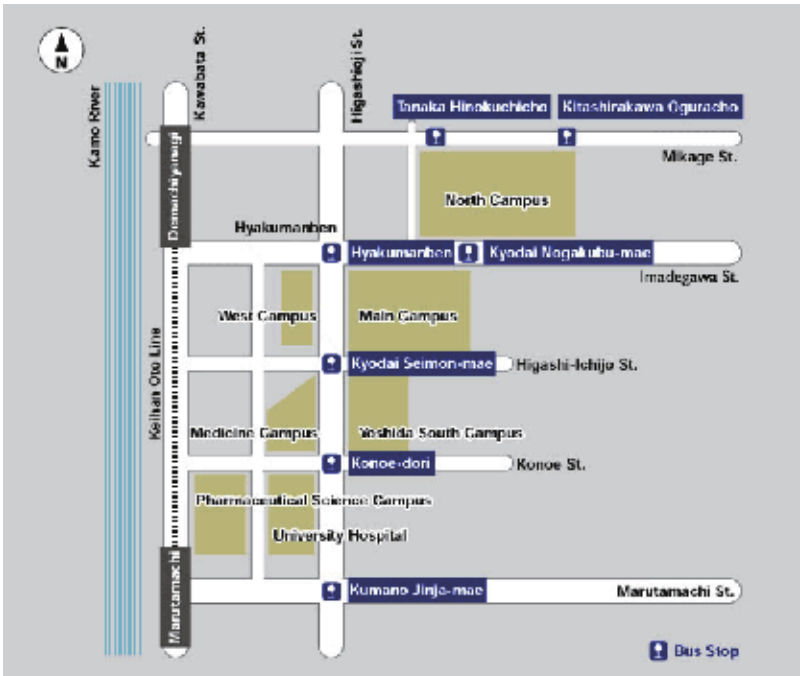
Environmental Innovator Program (EIP) -Cultivating Environmental Leaders across ASEAN Region-
Project Associate Professor Suwanna Kitpati BOONTANON
Project Senior Lecturer Ryo KIKUCHI

Top Global University Project “Japan Gateway: Kyoto University Top Global Program” (JGP) Environmental Studies
Project Assistant Professor Yuki OKAMOTO

Graduate School of Global Environmental Studies (GSGES) Location Map

<Yoshida main campus>





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