FY2025

For the Earth, For the Next Generation

SATREPS

Science and Technology Research Partnership for Sustainable Development Program

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SUSTAINABLE DEVELOPMENT GOALS
17 GOALS TO TRANSFORM OUR WORLD

VEGETABLE OIL INK

2025.10

JST AMED JICA

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Greetings

Japan Science and Technology Agency (JST)

President
HASHIMOTO Kazuhito

Japan Agency for Medical Research and Development (AMED)

President
NAKAGAMA Hitoshi

Japan International Cooperation Agency (JICA)

President
TANAKA Akihiko

SATREPS is a joint research program between Japan and developing countries that aims to find solutions to issues of a global scale, such as global warming, bio-resources, natural disasters, and infectious diseases. It is part of Japan's "science and technology diplomacy" collaboratively pursued by the science and technology sector and the diplomatic sector to promote mutual development. Global issues become more and more complex every year, and they tend to hit developing countries particularly hard. They have gone beyond the stage where they can be solved by any single country alone. Their solutions will require international innovations and research outcomes in science and technology to be fed back into the community, as well as the development of human resources and upgrading of research capabilities.

In September 2015, the United Nations Sustainable Development Summit was held at U.N. headquarters. This Summit culminated in the adoption of the Sustainable Development Goals (SDGs), a collection of goals for the international community to work together to achieve by 2030. The SDGs are an important guideline for the elimination of poverty and the realization of sustainable growth by 2030. They emphasize the importance of global partnerships among all parties working to achieve them. The intention of SATREPS is to contribute to the international community as it aims to achieve sustainable development through the SDGs, by having researchers from Japan and developing countries work together on issues, creating new knowledge and technologies based on local needs, which can be put to use in the actual community.

JST, AMED and JICA will continue to engage in global issues together with developing countries and, by building strong bonds of trust, pursue the creation of new values in science and technology.

~ Japan Science and Technology Agency and Sustainable Development Goals ~

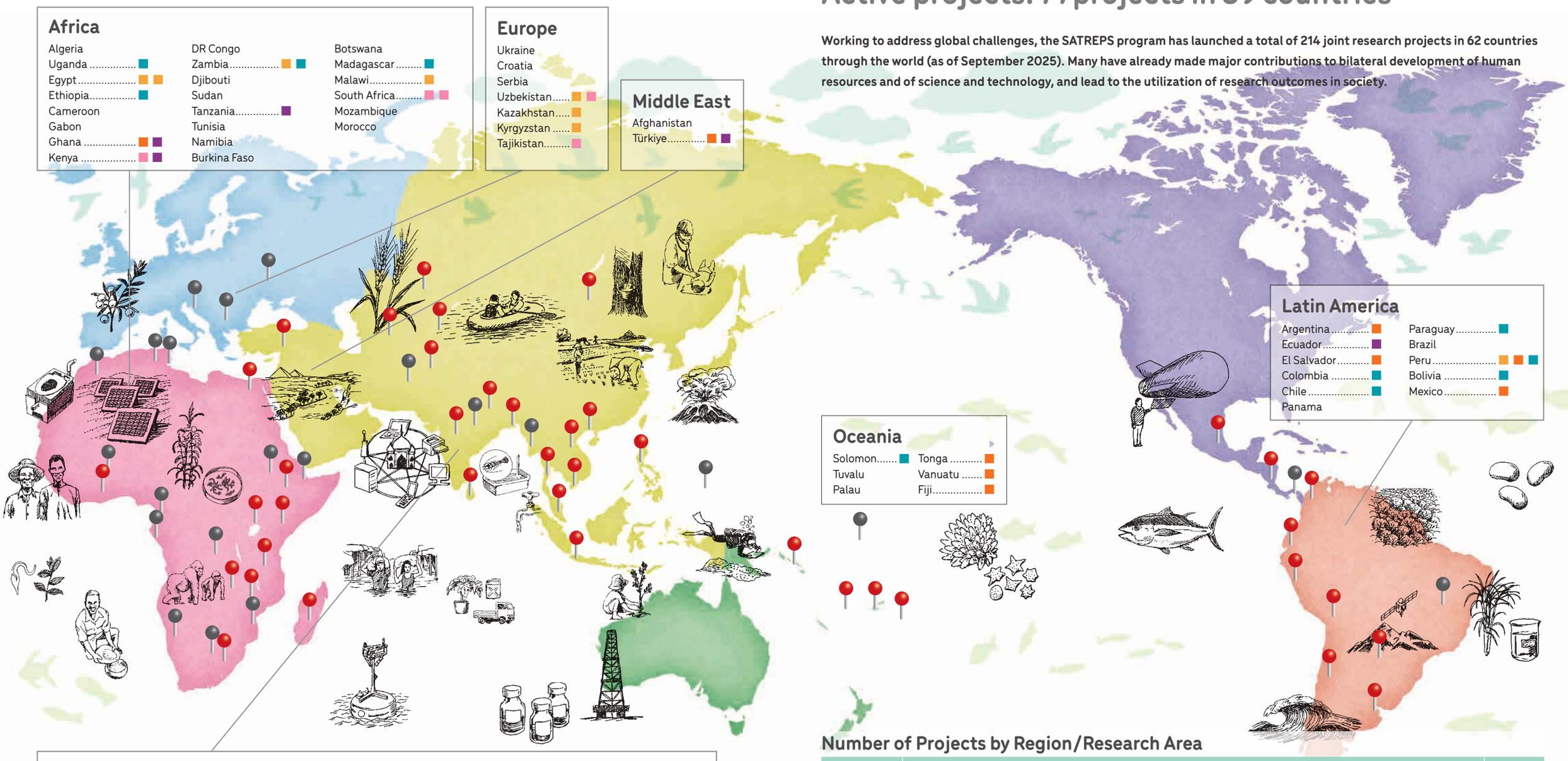
The 2030 Agenda for Sustainable Development, consisting of 17 Sustainable Development Goals (SDGs) and 169 targets, was unanimously adopted by the United Nations General Assembly on September 2015. The SDGs encompass challenges that affect all of humanity and our planet. For Japan, the resolution of these issues is closely linked to the realization of Society 5.0 and the Fourth Industrial Revolution described in the Fifth Science and Technology Basic Plan, which is one of Japan's growth strategies. They are also the basic principles of Japan's contribution to developing nations and the international community at large.

In June 2016 the United Nations held for the first time a forum focused on how science, technology and innovation (STI) can help achieve the SDGs. There are strong expectations that STI can provide the scientific grounding for tackling various challenges concerning sustainability that humanity faces today and for making better policy decisions.

To enable STI to help realize the SDGs, it is vital to ensure collaboration among all the diverse stakeholders, such as government agencies, universities, research centers, non-government organizations, and business enterprises. The Japan Science and Technology Agency will take advantage of all its many functions—including think tank, research and development, collaboration with industry and academia, people development, and science communication—to contribute actively to SDG initiatives in Japan.

Active projects: 77projects in 39 countries

Working to address global challenges, the SATREPS program has launched a total of 214 joint research projects in 62 countries through the world (as of September 2025). Many have already made major contributions to bilateral development of human resources and of science and technology, and lead to the utilization of research outcomes in society.



: Countries/regions where the project is being implemented

: Countries/regions where projects have been implemented (in the past)

Distribution of research areas of the projects: Global-scale Environmental Issues Carbon Neutrality Bioresources Disaster Prevention and Mitigation Infectious Diseases Control

* SATREPS projects in the field of Infectious Diseases Control have been transferred to AMED – the Japan Agency for Medical Research and Development. (On April 1, 2015.)

Number of Projects by Region/Research Area

Region	Ongoing Projects						Projects*
	Global–scale Environmental Issues	Carbon Neutrality	Bioresources	Disaster Prevention and Mitigation	Infectious Diseases Control	Total	
Asia	12	10	8	7	6	43	116
Middle East	-	-	-	1	1	2	4
Europe	3	2	-	-	-	5	8
Africa	4	3	4	1	3	15	52
Latin America	1	-	5	3	1	10	30
Oceania	-	-	1	1	-	2	4
Total	20	15	18	13	11	77	214

* Total number of projects carried out under SATREPS since its inception in 2008

* Ongoing projects involving more than one partner country are included in the count for each region involved, but only counted as a single project in the totals. Consequently, the totals given for the number of ongoing projects may be less than the sums of the number of projects in individual regions/research areas in the table.

–SATREPS and Science & Technology Diplomacy–

Science & Technology becomes a resource for diplomacy

KOTANI Motoko

SATREPS Program Director

Executive Director of Science, RIKEN
Executive Vice President for International Research Strategy, Tohoku University
Specialties: Mathematics, Geometry, Discrete Geometric Analysis

Today, the Sustainable Development Goals (SDGs)s are a focus of worldwide attention, requiring the urgent resolution of challenges including climate change, food security, natural disaster mitigation, and infectious diseases, as well as international collaboration toward their solutions. The SATREPS program contributes to the SDGs by advancing and supporting joint research between Japan and developing countries with the aim of tackling these global challenges. The most important feature of this program, which is also part of Japan's official development assistance (ODA), is that it not only aims at making significant scientific findings, but also creates a clear path for the utilization of these findings in society, both in partner countries and elsewhere, on an ongoing basis after projects are complete. SATREPS is a shining example of Japan's hands-on science and technology diplomacy and a valuable component of our foreign policy.

Why "Science & Technology Diplomacy" ?

In 2008, when the SATREPS program was launched, people from the Cabinet Office, the Ministry of Education, Culture, Sports, Science, and Technology (MEXT), the Ministry of Foreign Affairs, and other agencies put together a policy for "Science and Technology Diplomacy" that could utilize a broad range of Japan's science and technology as a resource for diplomacy. As you can see from the large number of Nobel Prizes awarded to Japanese researchers in comparison with other Asian countries, Japan is very strong in science and technology, but our framework for actively contributing to science and technology in developing countries still has room for further improvement. In terms of bilateral agreements for scientific and technological collaboration, Japan has signed fewer accords with developing countries than have other advanced nations. I am convinced of the importance of Japan's greatly expanding this science and technology diplomacy as a policy for creating good relationships with developing countries, by using science and technology to meet their expectations.

What role does SATREPS play in science & technology diplomacy?

SATREPS is a program that supports international joint research between Japan and developing countries by adding a government science and technology budget allocation to the existing overseas development assistance (ODA) budget. Japanese researchers and those from developing countries work as equals in joint studies to tackle global challenges for which international collaboration is required. The SATREPS program aims not only to help resolve such global issues, but also to train young researchers who are capable of working internationally, generate innovation through the acquisition of new knowledge and skills, and ensure that the outcomes of this research can make a lasting contribution to society in the partner country.

Top: Botswana project (Low Carbon/Energy, FY2011)
Bottom: Bolivia project (Bioresources, FY2019)

Oussouby SACKO

Member of the program committee

The SATREPS program of partnerships in projects needed to address global challenges

Our planet faces a number of issues that affect its future. In addition to population concerns, food crises, life-threatening risks, infectious diseases, and education issues in Africa, Asia, and other areas of the world. We face natural disasters and, environmental and energy issues caused by human activity that have a global impact. Tackling these challenges requires strong collaborative partnerships between research institutions across the world. The SATREPS program is a Japan-led initiative in which researchers from Japan and partner countries collaborate directly with each other on research and development, increasing international technological and research capacities. Moreover, SATREPS projects enable the next generation of researchers to learn from each other and grow together as they work to develop the approaches and innovations required for solving global issues. There is an African proverb that says, "If you want to go fast, go alone; if you want to go far, go together." Pooling our strengths through the SATREPS program gives us a platform through which we can work together to tackle the issues facing the "commons" that is our planet.

SATREPS : Science and Technology Research Partnership for Sustainable Development

SATREPS is a Japanese government program that promotes international joint research. The program is structured as a collaboration Among the Japan Science and Technology Agency (JST) and the Japan Agency for Medical Research and Development (AMED), which provides competitive research funds for science and technology projects, and the Japan International Cooperation Agency (JICA), which provides development assistance (ODA). Based on the needs of developing countries, the program aims to address global issues*1 and lead to research outcomes of practical benefit to both local and global society*2.

*1 Global issues: Issues that affect more than a single country or region, and cannot be resolved without international collaboration. Examples include energy/environment issues, disaster risk reduction, infectious disease control, and food security.
*2 Utilization of research outcomes: The research projects should lead to future social and economic benefits, achieved by using newly obtained knowledge and technology to enhance government services or to develop products that can be deployed in the market.

International Cooperation to Address Global Issues, Advance Science, Develop Capacity

1. International Cooperation
Enhancing international cooperation in science and technology between Japan and developing countries

2. Addressing Global Issues and Advancing Science
Acquiring new knowledge and technology that lead to the resolution of global issues and the advance of science and technology, and through this process, creating innovations

3. Capacity Development
Boosting self-reliant research and development capacity in developing countries through international joint research, constructing sustainable research systems that can contribute to resolving issues, coordinating networking between researchers, and training future human resources in developing countries and in Japan

Utilize Research Outcomes

SATREPS joins and coordinates functions, activities, and capabilities that were once separate, using scientific research potential as a mediator for developmental diplomacy

Science and Technology Promoting science and technology, encouraging innovation	×	International Cooperation ODA, development assistance
Meeting Global Needs Resolving global issues and contributing to the science and technology community	×	Meeting Local Needs Capacity development to address issues emerging as local needs in developing countries
Japan's Capabilities • World-leading technology, proven research capacity • Soft power	×	Developing Countries' Capabilities • Direct experience, knowledge, and data needed for research on global issues • Potential to contribute to the global economy through new markets and industries

Research Fields

SATREPS projects typically share the following characteristics:

- To envisage their outcomes being applied to the benefit of broader society as well as in the developing country
- To cover topics in developing countries for which research and development to resolve an issue is particularly necessary, and for which capacity building of researchers is required
- To contribute to the resolution of global issues and scientific and technological progress

* A project is not eligible if it consists merely of transfer of Japanese technology without entailing any joint research, or solely of surveys and other simple operations that do not make any contribution to the advancement of science and technology, or if it produces outcomes that can only be of benefit to one particular country.

Environment/Energy

Global-scale Environmental Issues

This research area aims to resolve environmental and energy issues occurring on a global scale triggered by deterioration of ecosystems and biodiversity, increased pollution, concentration of urban population, increased production and consumption activities, and climate change.

Examples of eligible research projects

- Research on the observation, prediction, impact assessment, and adaptation to climate change
- Research that contributes to assessing and predicting the abundance of water resources and improving safe, sustainable water resource management, utilization, and treatment (including proposals to strengthen the capacity of water utilities and improve service quality, and research concerning the reconciliation of conflicting interests pertaining to water resources and how to build consensus)
- Research on establishing a material-cycle society (including collection and reuse of waste and useful resources)
- Research on the conservation and restoration of ecosystems and biodiversity on land and in the sea
- Research on urban environmental conservation (including greening) for the purpose of smart city construction, mitigation of environmental degradation as a result of urbanization, land use that contributes to climate change mitigation, and the construction and operation of urban plans
- Research on reconstruction and restoration of environments damaged by large-scale disasters(including the preservation of cultural heritage)
- Research on sustainable use of natural resources
- Research on chemical pollution, its risk reduction and remediation

Research Supervisor
YAHARA Tetsukazu

Promote socially implemented science to help solve environmental problems

Global environmental issues such as climate change and biodiversity loss remain serious concerns. SATREPS emphasizes the implementation of research results to provide solutions to these issues through continuous monitoring, assessment, and the development of systems for the application of new technologies. We promote socially-implemented research in collaboration not only with researchers in partner countries, but also with government agencies, business sectors, and citizen organizations.

Research Supervisor
TAKAMURA Yukari

Research Supervisor
YAMAGUCHI Yasushi

Research Supervisor
OKUBO Noriko
*Represented by an illustration upon their own request

Research Supervisor
NAKAIWA Masaru

Co-create a carbon-neutral future

Global warming and climate change are already becoming real-life threats worldwide. The SATREPS program is facing up to this difficulty by funding the co-creation of advanced technologies by Japan and emerging nations and promoting their social implementation. The projects currently underway around the world aim to utilize the characteristics of the countries and regions concerned in order to resolve global issues while combining carbon neutrality with economic development.

Research Supervisor
SHIKAZONO Naoki

Research Supervisor
FUJII Yasumasa

Carbon Neutrality

This research area consists of energy conservation, promotion of the utilization of renewable energies, and research and development of smart society; research outcomes can potentially be utilized to cut greenhouse gas emissions and realize a carbon neutrality.

Examples of eligible research projects

- Studies of the introduction and validation of social systems contributing to the realization of lowcarbon societies and green transformation (GX) in developing countries, such as carbon pricing and energy transition
- Research on renewable energy, such as sunlight and solar heat, wind power, ocean energy,geothermal energy, and biomass.
- Research promoting the use of renewable energy through the generation and utilization of carbon recycling, green hydrogen, blue hydrogen, ammonia, methane and other substances for the purpose of contributing to decarbonization
- Research on energy conservation in industrial processes and elsewhere
- Research utilizing digital technologies to create sustainable, resource-recycling cities and communities in forms such as smart cities, smart communities, smart agriculture, transport networks, and next-generation infrastructure
- Component technologies related to carbon capture, usage, and storage (CCUS) and negative emissions
- Research contributing to reducing greenhouse gas emissions from non-energy sources, such as CH_4, N_2O, and HFCs
- Research contributing to sustainable aviation fuel (SAF), synthetic fuel for use in transportation machinery, and reducing carbon gas emissions in the transport sector field

* Each of the Research Supervisors has overall responsibility for research in a specific research area. He or she joins external experts on the screening committee, a committee that decides on candidates for SATREPS projects (including candidates for conditional selection). After projects have been approved, the Research Supervisors handles the research management for his or her research area by coordinating the research plans of the individual research projects, exchanging ideas and views with principal investigators, giving advice concerning the research, conducting project evaluations, and by other means as necessary.

Bioresources

Bioresources provide us with foods, medicines, animal feeds, textiles, energy, and much more, but sustainable production is threatened recently by problems such as desertification, salinization of agricultural land, pests, unstable temperatures, and unreliable rainfall. This research area concentrates on collaborative research that can point the way to sustainable means of production and utilization.

Examples of eligible research projects

- Research and development contributing to the sustainable production and utilization of bioresources (including resource management, breeding, cultivation, propagation and culturing technology for plant, animal, marine and microbial resources, production/distribution systems)
- Research contributing to the evaluation and effective utilization of bioresources, including unutilized resources (including using biodiversity for discovery, identification, and production of valuable substances derived from biological resources but excluding human drug development)
- Research on improving the environmental settings for bioresources (including the prevention of damage to agricultural crops and livestock, and the creation and improvement of green infrastructure)
- Research contributing to mitigating the effects of climate change on the production of biological resources

Bioresources contributing to the SDGs

Research Supervisor
IRIE Kenji

For the conservation and effective utilization of global bioresources that are essential for our future, it is important to strengthen and expand development cooperation, particularly with regard to human resources. We call for research and development on production, utilization, and management of bioresources crucial to SDGs initiatives through international collaborative research, taking into account the distribution of benefits to countries of origin.

Research Supervisor
MASUDA Misa

Research Supervisor
NAGAMINE Tsukasa

Research Supervisor
IGUCHI Masato

Use disaster prevention science and technology to achieve the SDGs

Natural disasters have many causes, but in recent years climate change and the complexification of society have made disaster prevention and mitigation measures more difficult. Achieving the SDGs is not an easy task, but science and technology are an important key to resolving these issues. Projects in the SATREPS Disaster Prevention and Mitigation research area are conducting research and development into the science and technology required for this unceasing effort and implementing the results in society in collaboration with developing countries.

Research Supervisor
ASAEDA Takashi

Research Supervisor
TAMURA Keiko

Disaster Prevention and Mitigation

To realize safe, resilient and sustainable cities and society, this research area will engage in comprehensive and systematic research, within a global framework on prevention and mitigation of natural disasters as well as increasingly serious large-scale disasters caused by urbanization, leveraging the experience and knowledge accumulated in Japan.

Examples of eligible research projects

- Research on clarifying the mechanisms and prediction of disasters associated with natural phenomena such as earthquakes, tsunami, volcanic eruptions, storms, storm surges, inundation, drought, heat waves, and landslides, together with prevention and mitigation measures to prevent such disaster risks and damage from becoming more large-scale, as well as measures for restoration and reconstruction, and research on effectiveness of investment in disaster risk reduction
- Research on understanding the relationships between climate change and large-scale natural disasters and measures for adapting to damage thought to be caused by climate change
- Research on identifying the mechanisms whereby large-scale natural disasters that are exacerbated by urbanization (such as urban flooding caused by localized heavy rainfall, sea level rise, or ground subsidence; earthquake damage and associated fire damage in regions with vulnerable buildings and urban fabrics; and damage to lifelines, transport networks, and other social infrastructure) become widespread, and on damage mitigation strategies.
- Research contributing to the prevention and mitigation of regional and urban disasters through the prompt collection and effective utilization of disaster information (including the development of technologies to utilize disaster observation satellites, remote sensing, UAV, GIS, GNSS, ICT, IoT, Big Data, AI, and other digital technologies)
- Research on building national resilience to create and maintain disaster-resistant, resilient communities, land use planning and urban design, and improvements to social infrastructure and its sustainable operation
- Research for the prevention of, mitigation of, and recovery from disasters that combines approaches across the natural sciences, humanities, and social sciences to help establish precise and practical disaster forecasting and enable effective recovery
- Research on disaster countermeasures prompted by the occurrence of the COVID-19 pandemic and improving overall social resilience

Infectious Diseases Control

People and goods now cross national borders so frequently that the threats of HIV/AIDS, malaria, dengue fever, tuberculosis, highly pathogenic influenza, Ebola hemorrhagic fever, COVID-19 and other emerging and re-emerging infectious diseases are not confined to developing countries. Japan is keen to boost international cooperation regarding infectious diseases that have the potential to enter Japan, in order to accumulate knowledge in advance of any actual outbreak.

Examples of eligible research projects

- Zoonoses such as avian influenza, rabies and other diseases
- Epidemiology, diagnostics, vaccines and therapeutics for the detection and control of emerging and re-emerging infectious diseases including HIV/AIDS, Ebola hemorrhagic fever, Protozoa and parasitic diseases such as malaria, dengue fever, tuberculosis and bacterial infections resistant to antibiotics such as carbapenem and colistin.

SATREPS projects in the field of Infectious Diseases Control have been transferred to AMED – the Japan Agency for Medical Research and Development. (The transfer took place on April 1, 2015. Projects that finished before that date were not transferred.)

Toward global health security

Program Supervisor
TANIGUCHI Kiyosu

The recent outbreak of the novel coronavirus (SARS-CoV-2) has demonstrated that emerging infectious diseases can spread around the world in a matter of days, causing enormous socioeconomic losses and serious health hazards. To counter such diseases, it is crucial to reinforce routine measures and preparedness during normal conditions, including establishing a surveillance and response system to enable early detection and a rapid response, as well as vitalizing research systems based on problem-solving to swiftly develop medical countermeasures. Through the SATREPS program, we aim to enhance Japan's research capacity and provide technical assistance to our partner countries to contribute to health crisis countermeasures in Japan and entire planet.

Program Officer
AIGA Hirotsugu

Program Officer
ATO Manabu

Program Officer
KANO Shigeyuki

Program Officer
MORIKANE Keita

The Cooperation among JST, AMED and JICA

Competitive Research Funds/ODA Technical Cooperation Projects

Overall research and development management of the international joint research is handled jointly by JST and AMED, both of which have expertise in funding research projects at research institutions in Japan, and JICA, which has expertise in technical cooperation in developing countries.

It is expected that the promotion of international joint research activities under this program will enable Japanese research institutions to conduct research more effectively in fields and targets where it is advantageous to implement the research in developing countries. Meanwhile, it is hoped that for research institutions in the developing countries (primarily universities and research institutions focusing on activities for public benefit, but excluding those related to military affairs), the establishment of research center facilities and the development of human resources through joint research activities will make it possible to develop self-reliant, sustainable research systems.

JST and AMED will provide financial support to the Japanese research institutions for the project activities in Japan and JICA will provide financial support to the research institutions in the ODA recipient countries within the framework of technical cooperation projects*.

* As JICA supports the partner country with ODA under the technical cooperation framework, the country is required to depend on its own efforts. Consequently, the local institution's costs incurred for the project (labor cost, office rent, consumables by local researchers, operation and maintenance of equipment provided, domestic transportation fees for local researchers, conference attendance allowances, and other miscellaneous costs) should in principle be covered by its own country.

Point

■ **Research fields**
Environment/Energy, Bioresources, Disaster Prevention and Mitigation, Infectious Diseases Control
- SATREPS projects in the field of Infectious Diseases Control have been transferred to – the Japan Agency for Medical Research and Development (AMED). (The transfer took place on April 1, 2015. Projects that finished before that date were not transferred.)

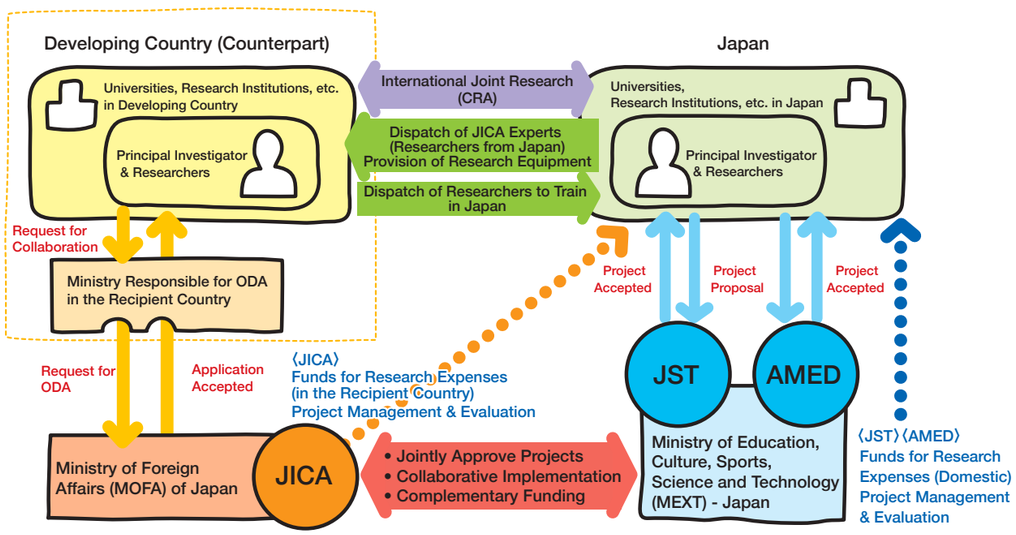
■ **Duration of research**
3-5 years

■ **Countries covered by SATREPS**
ODA 'Technical Cooperation Projects' receiving countries

■ **Project budget**
Approx. 100 million yen/year for one project (JST: 35 million yen/AMED: 32 million yen (JICA: 60 million yen)

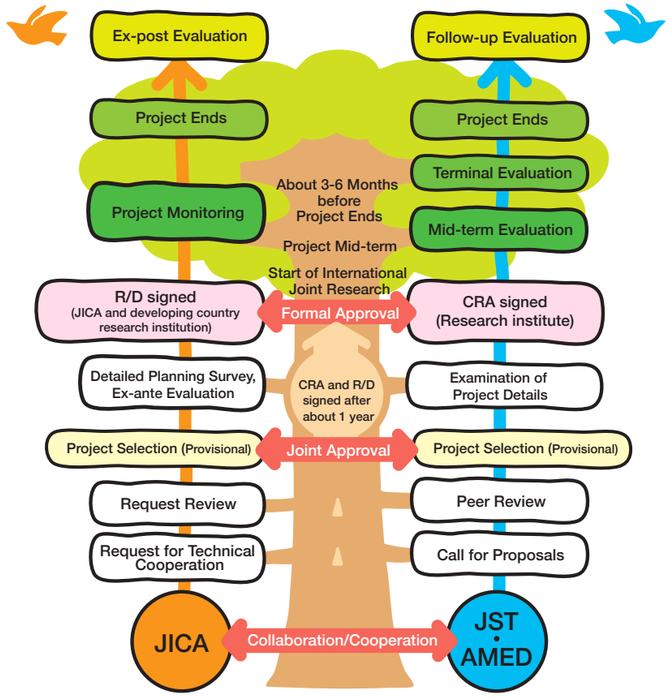
Ref. Application Guideline
https://www.jst.go.jp/global/english/koubo.html

SATREPS Project Scheme



SATREPS Project Step

Project Progress



Applications of Research Proposals and ODA Technical Cooperation

JST and AMED invite researchers at universities and research institutes in Japan to submit research proposals in specific research areas. While JST and AMED select proposals, requests are received from developing countries for ODA technical cooperation for the international joint research, and Ministry of Foreign Affairs(MOFA) reviews these requests in conjunction with JICA in Japan. Therefore, it is essential for the Principal Investigator(PI) in Japan to coordinate with researchers in the ODA recipient country in order to confirm the details of the joint research when making an application to JST and AMED. Official requests for ODA technical cooperation must be submitted by the research institution in the recipient country to MOFA by the specified deadline, via the ministry or agency in the recipient country responsible for ODA and the local Japanese embassy.

Selection of SATREPS Projects (Provisional)

The selection process for research projects at JST / AMED and the screening process for ODA technical cooperation at MOFA / JICA are interlinked. The applications submitted to JST/AMED by the Japanese PI and to MOFA (local Japanese embassy) for ODA technical cooperation must be provisionally selected in order for the research project to be supported under the program.

Preparation for an International Joint Research Project

To implement the international joint research, a Record of Discussions (R/D) must be signed by the research counterpart(s) in the developing country and JICA to confirm that they agree on the details of the ODA technical cooperation. In addition, a Memorandum of Understanding (MOU) or similar document about the joint research must also be signed between the research institutions (parties concerned) in Japan and the ODA recipient country.

Evaluation by JST, AMED and JICA

Projects are reviewed by JST, AMED, and JICA, acting in collaboration. JST/AMED evaluate the whole of the international joint research project, both in Japan and in the developing country, from the perspective of the project outcome benefiting society by contributing to the resolution of global issues, and from the perspective of the project advancing science and technology. JICA evaluates the joint activities of the PI and other researchers including the counterpart research institutions' researchers from an ODA project perspective, confirming that the project has contributed to developing human resources and enhancing capacity in the developing country, and has contributed to the developing country's needs.

* Provisionally selected: At this stage, discussion of details with the counterpart research institution or circumstances in the developing country may still result in small modifications to the project name or description, a shorter project term, or even termination of a newly-selected research project. For that reason, the project is described as provisionally selected.

Environment/ Energy (Carbon Neutrality)

Realizing better quality of life and low-carbon society

Principal Investigator
Distinguished Prof. HAYASHI Yoshitsugu
Japan
Center for Sustainable Development and Global Smart City, Chubu University

Principal Investigator
Prof. THANARUK Theeramunkong
Kingdom of Thailand
Head, Intelligent Informatics and Service Innovation Research Center, Thammasat University

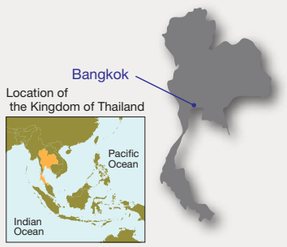
Advantage of Joint Research

Building on previous contributions through JICA to introduce Bangkok's first urban railway in the 1990s, this project has the potential to elevate Japan's presence in the global effort to reduce green-house gas emissions and realize a low-carbon society.

The "Smart Transport Strategy," underpinned by cyber-technology, has the potential to both improve Bangkok residents' quality of life and realize a low-carbon society. With most Thai group leaders in this project having experience studying at Japanese universities, smooth collaboration has allowed for accelerated research activities.

Research Field

In Bangkok offices and government functions are mono-centralized in the city center. This is one of the fundamental causes of severe traffic congestion together with car-dependent commuters. They now drive bigger cars than using traditional sharing system, TukTuk, according to income increase. Sukhumvit—the pilot district for this project—is a major business area in Bangkok that sits along the Sukhumvit Road, with an elevated railway line overhead.



- Adoption Fiscal Year: 2017
- Partner country: Kingdom of Thailand
- Research Institutions in Thailand: Thammasat University / Kasetsart University / Chulalongkorn University / NECTEC / AIT
- Research Institutions in Japan: Chubu University / University of Tokyo / Kagawa University / Meijo University / Dia Nippon Engineering Consultants Co., Ltd. / Mitsubishi UFJ Research and Consulting Co., Ltd.
- Research Period: 6 Years

Smart Transport Strategy for Thailand 4.0

Critical Issues in Thailand's Capital of Bangkok

Mono-centralization of urban functions

Excess demand of private cars

This causes...

Road congestion Traffic jams

Some commuters face 8-hour round trips...

Pedestrian-unfriendly street / Traffic accidents

60+ traffic fatalities every day

Air pollution CO_2 & $PM_{2.5}$ emissions

>15% of the population suffers from asthma

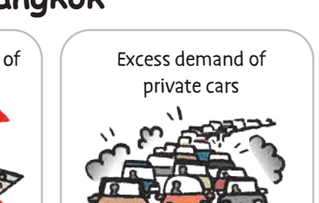
Low QOL and Economic Loss

No railways in Bangkok?

Prof. HAYASHI Yoshitsugu

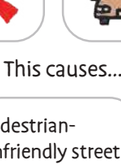
I was previously involved in Initiating of Railways as a JICA committee chairman

The BTS Skytrain, Bangkok's 1st elevated railway, opened in 1999, with a remarkable network expansion following thereafter.

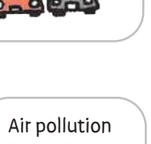


However...

The train? I never use



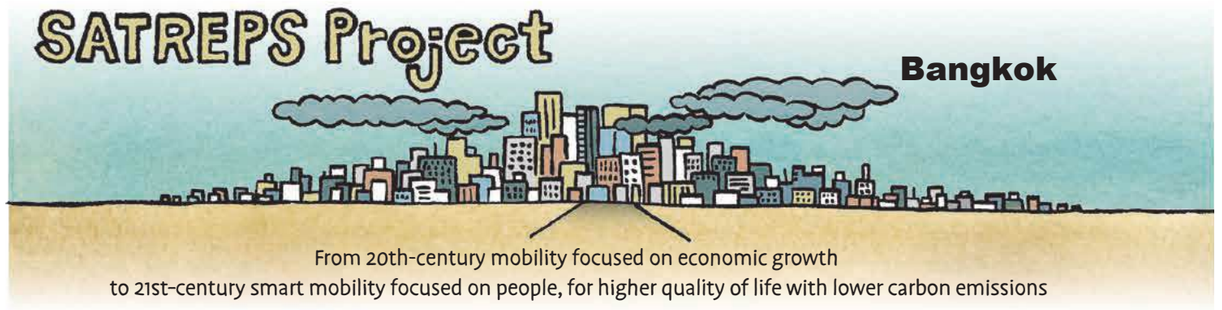
I have no means of station access



Streets to my station are unsafe and poorly maintained

Hmm...

Therefore, many do not utilize the railways being built, trains by themselves can not contribute to solving Bangkok's social issues.



Metropolitan Grand Design to realize smart cities

The planning of "smart cities" in line with the Thailand 4.0 National Strategy requires a fundamental shift in transportation strategy. The first step in moving from 20th-century mobility (prioritizing economic growth) towards 21st-century smart mobility (maximizing individual citizen's quality of life) was creating the Bangkok Metropolitan Grand Design for urban growth management. This macro-level plan centers around shifting Bangkok's transport infrastructure from road- to rail-centric, and forming sub-centers in areas with good rail access, thus deconcentrating commercial business and reducing car trips to/from the city center.

Last mile systems developed to boost QOL through lifestyle change

"Street for All" strategy in Sukhumvit to realize smooth last-mile access by servicing train stations with small smart vehicles and redeveloping streets into more walkable spaces. From this, the "Sukhumvit Model"—a policy package to realize a smart transport strategy for the area—was proposed, which aims not only to shift transport modes but also to encourage lifestyle changes that improve citizens' QOL. Making full use of AI technology, the systems developed are to enable a diversity of citizens to seamlessly traverse various modes of transport, better meeting their individual needs and promoting a vibrant lifestyle.

Background to SATREPS research proposal

Traffic congestion is not unique to Bangkok but many other Asian mega-cities facing a similar situation, and therefore this model case study in Thailand has wider significance. Bangkok fell into the said “worst traffic congestion in human history” in 1990’s. From 1992 to 1996, I was in charge of a JICA project as committee chairman to roll out an urban railway system in Bangkok where no citizen did have a habit to ride on railways. I shared the hardships of building good relations with the Thai government and railway officials. Thus, I have numerous acquaintances across the government and research fields, and most of the Thai leaders in this project have studied abroad at Japanese universities. These good histories have enabled a fruitful collaborative research between Thailand and Japan, with many of our papers being published in international academic journals.

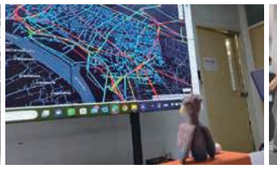
Challenges after project commencement

At the project’s outset, the Japanese side tended to take the reins by its own thought, which caused misunderstandings and drops in motivation for the Thailand side, making coordination difficult. The arrival of the COVID-19 pandemic and travel restrictions also upended plans to increase face-to-face dialogue to improve the situation. At this time, the local project coordinator came to the rescue, acting as an intermediary and proposing regular online meetings, etc. to properly grasp the needs of the Thailand side, enabling the Japanese side to respect these and provide support moving forward. As a result, misunderstandings gradually dissipated and the Thailand side was able to autonomously take the lead throughout, making for what we believe to be an ideal SATREPS project.

Equipment provision and utilization

Simulation software and servers were provided to Kasetsart University, which is engaged in the analysis of metropolitan land use - transport models. This made possible the verification of the vision for the Bangkok Metropolitan Region (BMR) and the effects on congestion relief put forward in the Sukhumvit Model. These equipments are used also beyond the project to verify the effectiveness of developments around train stations. After the pilot program of Smart Small Vehicle Service (SSVS), Thammasat University acquired the vehicles used therein and was provided with a ride-hailing app developed for the program. Thammasat University and SIIT were also provided with a “Digital Earth System”. This is an equipment that collects information from multiple input sources on a multi-display and will support future policy formulation and decision-making.


On-campus, SSVS social experiment continued to conduct for students and faculty members at Thammasat University.


Digital Earth System installed at Thammasat University


VR-integrated treadmill used to evaluate and improve walkability of street environments

Capacity development

In this project researchers and students from Japan and Thailand sides, senior and junior alike, worked together closely in joint researches across this project’s four theme groups. We believe that junior researchers and graduate students grew as a result of writing many journal articles during the period, with each member publishing more than five on average.

Interim Period

Leading up to signing R/D, CRA

Formal approval

After a project has been selected, it is required that the research institute in the partner country reaches agreement on project details with JICA within the framework of technical cooperation, for the SATREPS project to be formally adopted and international joint research can commence. In the provisional selection period after selection and before formal approval, the principal investigator and JST (AMED) meet several times, and the principal researcher typically travels to the partner’s institute to discuss details in preparation for signing the R/D (Record of Discussion) and CRA (Collaborative Research Agreement). This process takes about a year.

1st year

The first JCC
Kick off meeting

2nd year

JCC

3rd year

JCC
Mid-Term Evaluation

4th year

JCC


A brochure “A Pathway to Better Mobility for a Better Bangkok – The Sukhumvit Model” was produced in Thai and English and hand-delivered to the Governor of Bangkok, Dr. Chaickart, as well as distributed to all senior officials of BMA (Bangkok Metropolitan Authority).

5th year

The final JCC
Terminal Evaluation

After the research period

Interim period efforts

As Chubu University had no prior experience as a SATREPS principal research institution, the necessary systems and institutional knowledge were not yet in place. This was addressed by first conveying the significance of the project to the University’s Rector and President. Upon their understanding, a cooperative system and framework was sought, which helped to expedite the subsequent R/D and CRA signing process. At the same time, the Thai team members on-site made thorough visits to relevant government and business organizations, giving explanations of the project in Thai to key players.


Chubu University and Thammasat University signed Memorandum of Understanding (MOU)


Test drive held for Thailand’s Finance Minister to gain understanding of the project’s SSVS

Participating students’ comments

I believe that addressing Bangkok’s transport congestion is the key to improving their quality of life for Thai people. Because of traffic jams, people lose precious time which could be spent on beneficial activities, and they also accumulate unnecessary stress. Wanting to resolve these issues as soon as possible, the premise of developing a system to design and suggest individually tailored daily transport modes to improve quality of life motivated me to join this research project. Originally being an ICT major, the fundamentals of transport planning were not easy to pick up, but researching urban transport has certainly opened up new horizons for me.
(MEXT Scholarship Program doctoral student, Chubu University)

PR activities with a view to wider implementation. A project website was supplemented with social media posts (upper photo) and a promotional video introducing the project contents (lower photo).

Principal investigator’s comments

With the development of a methodology for evaluating policy packages to realize Thailand’s Smart Transport Strategy, and the completion of the Sukhumvit Model, our project goal has been accomplished. We principal investigators directly handed over the model to the Governor of Bangkok, by whom BMA officials were instructed to take action, and an article about the event was posted on the government’s website the same day. From here on, Thai research institutions will continue to update relevant data and liaise with stakeholders to materialize the Sukhumvit Model, while Chubu University is involved in ongoing joint research and providing logistical support.

Partner country principal investigator’s comments

We hypothesized that the fundamental causes of Bangkok’s hyper-congestion problems are urban structure, car dependency , and transport access in relation to individual citizen’s lifestyles and working patterns. We also led the development of a digital earth platform that integrated local surveys, QOL assessments, and other local contents with our research results.

As a result, we have created many opportunities for information exchange and policy proposals with the BMA and related ministries and agencies, and played an important role in promoting data-driven decision-making.

We hope that the younger generation will continue to participate in SATREPS activities and have further opportunities to promote effective and comprehensive solutions.

Strengthening of Resilience Through Research on Plant Resources and Technological Applications in Arid Agro-Ecosystems Vulnerable to Climate Change, and Technological Applications

Address climate change with quinoa, a highly nutritious crop that withstands harsh environments

Principal Investigator
Dr. FUJITA Yasunari

Japan

Program Director, Food Program, Japan International Research Center for Agricultural Sciences (JIRCAS)

Principal Investigator
Prof.
Giovanna Rocío Almanza Vega

Plurinational State of Bolivia

Head, Chemical Research Institute, Universidad Mayor de San Andrés

Advantage of Joint Research

Food crises induced by climate change—which this region can be described as being at the front line of—are a global issue. In such an environment, developing the infrastructure for research to combat drought, and the person-to-person connections that make up its most important foundation, offers us a promise of strengthened global food security.

As quinoa is a precious resource, we are working to develop a sustainable system for its production through the improvement of genetic resources, breeding of varieties suited to the region, and development of cultivation management techniques, etc. in cooperation with Japanese researchers. This is expected to help in stabilizing food production and increasing national income in Bolivia.

Research Field

Bolivia's Uyuni Salt Flats area sits just under 4,000 meters above sea level, with an annual rainfall of 150 to 200 mm and highly saline soil, making it a harsh environment for both plants and animals. Quinoa—a superfood native to the Andes that is forecast to play an increasingly large role in ensuring global food security—is not only highly nutritious, but also the only crop able to be grown in this mountainous region. However, frequent extreme weather events along with soil erosion induced by agricultural land clearing are currently posing a threat to quinoa production.

Location of the Plurinational State of Bolivia

- Adoption Fiscal Year: 2019
- Partner country: Plurinational State of Bolivia
- Research Institutions in Bolivia: Universidad Mayor de San Andrés (UMSA) / Fundación PROINPA
- Research Institutions in Japan: Japan International Research Center for Agricultural Sciences (JIRCAS) / Kyoto University / Tokyo University of Agriculture and Technology / Obihiro University of Agriculture and Veterinary Medicine
- Research Period 6 Years

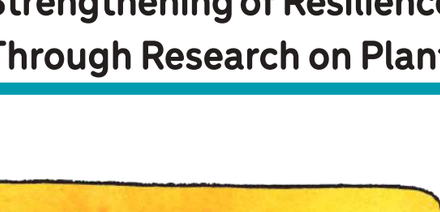
What is Quinoa?

Quinoa is a drought-tolerant and highly nutritious pseudo-cereal native to the Andes (Bolivia, Peru, and surrounds) in South America.

Dr. FUJITA Yasunari

Seeds and leaves become food

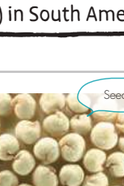
Cultivated for around 8,000 years, quinoa was once revered across the Andes as the "mother of all grains" However...

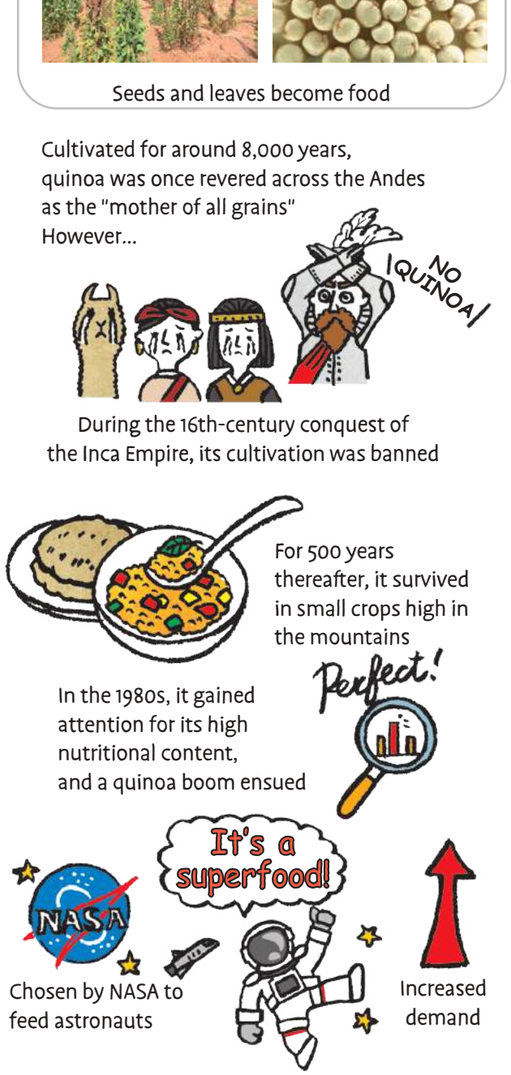


During the 16th-century conquest of the Inca Empire, its cultivation was banned

For 500 years thereafter, it survived in small crops high in the mountains

In the 1980s, it gained attention for its high nutritional content, and a quinoa boom ensued





Chosen by NASA to feed astronauts

Increased demand

Global Issues

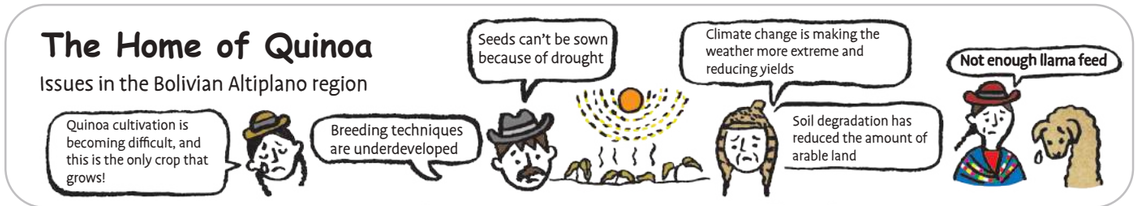
Environmental deterioration

Climate change

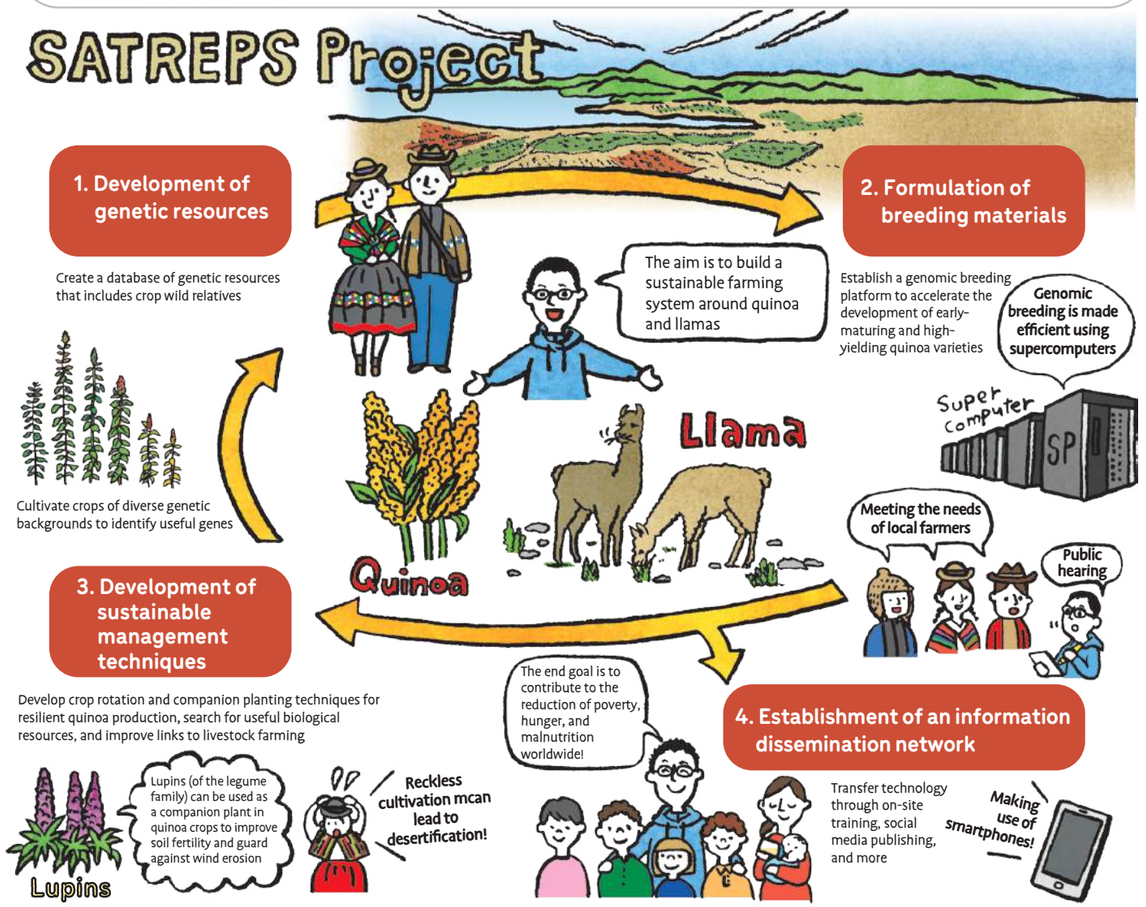
Food security

The Home of Quinoa

Issues in the Bolivian Altiplano region



SATREPS Project



Quinoa and llama farming integrated to form a sustainable system

While quinoa has attracted attention as a superfood, research into it has not progressed when compared to other major crops such as rice, and its genetic resources are underdeveloped. Furthermore, the cultivation of quinoa on unsuitable land has been a factor in soil degradation and desertification. In the Andean highlands, where no chemical fertilizers are used, the interweaving of llama and quinoa farming is imperative, and we are currently working on a method for processing stem and leaf waste from quinoa harvesting so that llamas can efficiently absorb nutrients from these. The goal is to create a recycling-oriented agriculture system where if the llamas grow healthy, give birth to many young, and produce lots of manure, this can then be repurposed as fertilizer for the quinoa, which then grows high in quality and quantity, producing plenty of food for the llamas.

Local farmers involved extensively from foundation to application

Cooperation has been central to four ongoing research topics, ranging from foundational research which includes genetic analysis of crop wild relatives, to the building of a network for information dissemination. As it is important to ensure that any technologies developed also become well-established locally, the project places a particular emphasis on information exchange and interactions with local farmers. As an example, when we asked farmers about their preferences for breeding materials, many responded that they wanted early-maturing varieties with a short cultivation period. This stemmed from their experience that bad weather and droughts, which often afflict the region, are more likely to affect varieties with longer growing periods. Such needs are difficult to ascertain without actually conducting a survey.

Background to SATREPS research proposal

My research into quinoa began about 10 years ago. Upon reaching an impasse on cultivation methods or such, I would look up previous papers and contact researchers to expand my network, which is how I became acquainted with Dr. Toukura from Obihiro University of Agriculture and Veterinary Medicine—who has served as a representative for "4. Establishment of an information dissemination network" in this project. I had heard about SATREPS from researchers involved in other projects, and the generous personal support provided by JST and JICA staff in addition to the financial assistance made it an alluring option. Conducting full-fledged research on quinoa in Bolivia would necessitate a significant support system and budget, so submitting a proposal to SATREPS seemed the only logical option. (Dr. FUJITA Yasunari)

Interim period challenges

Thorough preparations were made before submitting a proposal to SATREPS, including a visit to Peru and Bolivia to select joint research partners and formulate a research plan. However, the COVID-19 pandemic made travel impossible during a large portion of the interim period, and unfortunately, Bolivian leaders involved in launching the project suddenly passed away during this time. Other challenges also presented themselves, including a deterioration in public safety and policy-related disruptions which accompanied a transition in Bolivia's government. Ultimately, though delayed, formal approval of the project was able to be realized owing to a deepened trust between the Bolivian and Japanese joint research members and close liaison with various stakeholders including JST, JICA, and the local embassy.

Participating students' comments

Collaborating with researchers from UMSA and Fundación PROINPA on llama research, I conducted the installation of necessary equipment and transfer of technology at local test sites and llama farms. Perhaps in light of the language barrier, I often encountered differences of opinion when communicating with the locals, but was able to reduce such occurrences by engaging local counterparts to check that things were being properly conveyed to the other party. I'd like to continue sharing the knowledge and experience I gained through this project with other regions, and play a part in the eradication of hunger worldwide. (3rd year doctoral student, Obihiro University of Agriculture and Veterinary Medicine)

My goal is to understand the domestication process of quinoa, a crop that is native to South America. I have collected a total of 168 cultivated and weedy quinoa samples, over a 500 km stretch covering Bolivia's Lake Titicaca to the Uyuni Salt Flats, for comparison of genetic differences. On-site, I am currently conducting field cultivation, collecting morphological data, and analyzing genotypes. What motivates my research is a desire to address climate change and promote sustainable food production while ensuring that local cultures are preserved. My dream is to be active as a front-line researcher who connects science with the field! (2nd year doctoral student, Tokyo University of Agriculture and Technology)

Interim Period

Leading up to signing R/D, CRA

Formal approval

1st year

The first JCC
Kick off meeting

JCC (Joint Coordination Committee) is the highest decision-making body for the project, bringing together all the project stakeholders in a key meeting each year to hear reports on the project's progress, subsequent schedule, etc., and to discuss and to make decisions on behalf of the project.

2nd year

JCC

3rd year

JCC
Mid-Term Evaluation

JST/AMED and JICA collaborate and cooperate on project evaluation. See p.13 for more information about the perspectives employed in evaluations.

4th year

JCC

5th year

The final JCC
Terminal Evaluation

After the research period

In February 2023, Prof. Giovanna Almanza from UMSA along with others visited JIRCAS (Tsukuba Headquarters) to strengthen collaboration

Human resource training and communication

To facilitate technology transfer and joint research for the Japanese side, and technical training in Japan for the Bolivian side, there has been frequent mutual travel between the two countries. Since the end of the pandemic phase of COVID-19, around 15 Japanese staff and 10 Bolivian staff have been traveling each year, with stays ranging from around two weeks to over 200 days. Three international students from Bolivia have also been accepted in Japan during this time. This type of exchange is effective at facilitating the level of communication necessary to overcome all kinds of problems, and we have also felt the importance of deepening relationships not only through research and work, but also by taking the time to socialize every now and then.

Bolivian and Japanese researchers traveled back and forth between each other's countries, deepening interpersonal relations as the study moved forward

The significance of research equipment

Although the delivery of necessary equipment was fraught with significant delays related to conflicts and the COVID-19 pandemic, various efforts to speed this up were made in cooperation with JICA's local office and the Bolivian joint researchers. As Bolivia lacked some equipment necessary to advance research and disseminate information, such as mass spectrometers and spray dryers (to turn effective microorganisms into powdered agricultural materials), installing these paved the way for new progress and boosted the motivation of the research team. As climate change accelerates, investing in equipment that allows us to maximize the efficiency and pace of research to respond to this is increasingly vital.

Bolivian researchers have been invited to Japan to make use of its advanced facilities including the National Institute of Genetics' supercomputer system for genome analysis and breeding of quinoa

Principal investigator's comments

To date, the infrastructure for research into tackling drought on a global scale has been established, along with a solid foundation to approach the issue across each research subject, and so I believe that we are close to achieving our initial goal. At the same time, the issue remains that infrastructure for quinoa research is underdeveloped when compared to major crops, along with incongruity in the arrangements for genetic resources, and we are all too aware of the effect this has on the pace of research. As such, I would very much like to cement a system that will allow us to continue tackling this issue beyond the project's conclusion.

Partner country principal investigator's comments

The SATREPS project focused on creating climate-resilient quinoa varieties, agroecosystem-friendly technologies, and strengthening the quinoa-llama system. The project enhanced quinoa research in Bolivia by training young researchers, upgrading equipment, and fostering better communication with quinoa farmers. In the future, we aim to expand the technologies generated by the project, optimize research capacity for quinoa and other crops and continue scientific exchanges between Bolivia and Japan.


Kenya project (FY2019)

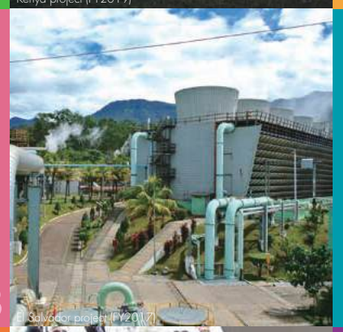
Environment/Energy
(Global-scale Environmental Issues)

23


Thailand project (FY2019)

Environment/Energy
(Carbon Neutrality)

33


Salvador project (FY2012)

Bioresources

41


Bolivia project (FY2019)

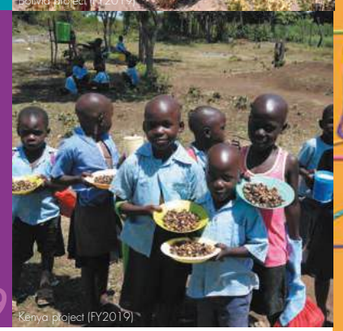
Disaster Prevention and
Mitigation

51


Argentine project (FY2021)

Infectious
Diseases Control

59


Kenya project (FY2019)

SATREPS 2025

Environment/Energy (Global-scale Environmental Issues)

01 = Next-generation Smart Mining Plus for Sustainable Resources Development =

Aim for zero pollution by digitizing mines with “Smart Mining Plus”!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof.
KAWAMURA Yohei (Youhei)

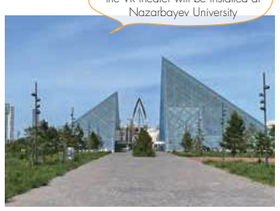
Faculty of Engineering, Hokkaido University

Principal Investigator
Prof. Fidelis Suorineni

School of Mining and Geosciences, Nazarbayev University

Establishing an immediate response system to pollution risks by visualizing mine environments

In the resource-rich country of Kazakhstan, groundwater, dust, and air pollution from mining development have become serious problems, posing a challenge to sustainable resources development. The “Smart Mining Plus” system is thus being developed to visualize entire mine environments by integrating Japanese mine environment management technologies and ICT. Based on environmental data collected by drones and sensors, risks are visualized and analyzed using digital twins and AI, and a system for immediate on-site countermeasures is implemented at local mines.

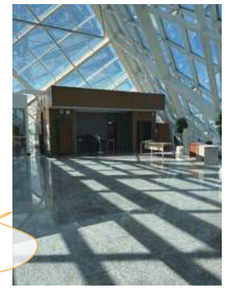


Exterior of the building where the VR theater will be installed at Nazarbayev University

Explaining the project to the Deputy Minister at the Ministry of Industry and Construction

The establishment and implementation of a sustainable and environmentally conscious mine development model

Sustainable mine development in Kazakhstan will be realized by establishing a management method that prevents environmental pollution caused by mine development, and enables an immediate response. Furthermore, the international deployment of mine environment management technologies and ICT, fields where Japan excels, will be promoted, and contribute to measures against environmental destruction and for a decarbonized society, which will become the norm for the global mining industry.



Interior of the building where the VR theater will be installed at Nazarbayev University

Research Institutions in Kazakhstan	Nazarbayev University
Research Institutions in Japan	Hokkaido University / Akita University / University of Tsukuba / National Institute of Advanced Industrial Science and Technology
Research Period	5 Years

02 = Development of a Satellite Data and a Regional Chemical Transport Modeling-based Air Pollution Assessment System and Formation of a Research Center for Air Pollution Studies =

Assessing air pollution throughout the Kyrgyz Republic using satellites and regional chemical transport modeling

Adoption Fiscal Year FY 2024

Principal Investigator
Prof.
NAWA Nobutoshi

Graduate School of Medical and Dental Sciences, Institute of Science Tokyo

Principal Investigator
Prof. Roman Kalmatov

International Medical Faculty, Osh State University

Storage of household coal

Development of an assessment system for air pollution and its economic and health impacts, and formation of a new research center

In the Kyrgyz Republic, air pollution has become a serious problem for reasons such as the burning of coal for heating. A new research center for air pollution studies will thus be established at Osh State University, with the aim of visualizing air pollution and its impacts to promote behavioral change and contribute to environmental measures. This will be achieved through the development of an assessment system for air pollution and its economic and health impacts using satellite data and regional chemical transport modeling in collaboration with Kyrgyz universities, government agencies, and international organizations.

Air pollution in the city of Osh

Osh State University, the representative research institute of the Kyrgyz side

Promoting behavioral change and contributing to environmental measures by visualizing air pollution and its impacts

By visualizing air pollution and its impacts on the economy and health, and by raising people’s awareness of outdoor and indoor air pollution, the project will contribute to the future achievement of sustainable economic development in the Kyrgyz Republic in an environmentally and health-conscious manner, while also contributing to climate change mitigation through the reduction of GHG emissions.

Research Institutions in Kyrgyz	Osh State University / International Higher School of Medicine / Ministry of Health / Republican Center of Health Promotion and Mass Communication / Center for Electronic Healthcare / National Institute of Public Health / Ministry of Natural Resources, Ecology and Technical Supervision / Kyrgyz Hydrometeorological Service / Osh Mayor’s Office / Osh Interregional Hospital
Research Institutions in Japan	Institute of Science Tokyo / Kyushu University / St. Luke’s International University
Research Period	5 Years

03 = Utilization of Agricultural Wastes for Plastic Alternative Productions to Establish a Circular Economy =

Contributing to the reduction of marine plastic litter and the establishment of a circular economy!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof.
YAMAMOTO Mitsuo

Graduate School of Agricultural and Life Sciences, The University of Tokyo

Principal Investigator
Prof. GEPREEL Mohamed Abdel-Hady

Department of Materials Science and Engineering, School of Innovative Design Engineering, Egypt-Japan University of Science and Technology (E-JUST)

Development and socioeconomic evaluation of agricultural waste-derived plastic alternatives

To solve the problem of marine plastic waste in developing countries in Africa and elsewhere, the project plans to develop plastic alternatives (biocomposites, paper) derived from agricultural litter, the effective utilization of which would be beneficial, and establish a comprehensive system to simultaneously reduce marine plastic waste and realize a circular economy in Egypt. To promote the circular economy, the project aims to provide policy recommendations for the actual industrial introduction of products manufactured using plastic alternatives, along with the development of the alternative materials themselves.

Inspection on the topic rice straw collection

Inspection on date palm residue

Distribution of products made from agricultural waste-derived plastic alternatives and creation of new industries

It is expected that the results of this project will be utilized as a model case for countermeasures against marine plastic litter and the establishment of circular economies in developing countries in Africa and elsewhere, leading to the distribution of agricultural waste-derived plastic alternatives and products, and the creation of new employment opportunities through the entire production process.

Kick-off meeting at E-JUST

Research Institutions in Egypt	Egypt-Japan University of Science and Technology (E-JUST) / Rice Research and Training Center (RRTC)
Research Institutions in Japan	The University of Tokyo / University of Tsukuba
Research Period	5 Years

04 = Project for Securing the Sustainability of Oasis Societies Associated with Water and Land Use in the Western Desert =

Enabling community-wide conservation of the water and land that support life in an oasis!

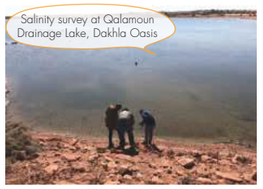
Adoption Fiscal Year FY 2023

Principal Investigator
Prof. IWASAKI Erina

Faculty of Foreign Studies, Department of French Studies, Sophia University

Principal Investigator
Prof. EL-BASTAWESY Mohamed

National Authority for Remote Sensing and Space Sciences (NARSS)



Salinity survey at Qalamoun Drainage Lake, Dakhla Oasis

Devising sustainable methods for water and land use suitable for the social and environmental conditions of an oasis

In Egypt’s Western Desert, large-scale groundwater and desert development is progressing in the name of food security, and the prevention of salt damage as well as groundwater conservation have become important issues. In this project, we investigate the appropriate usable amount of groundwater in consideration of the water and salt dynamics unique to oases. Based on this, the project will demonstrate farming techniques to maintain agriculture while curbing the progression of salt damage and the increased use of irrigation water, and establish a digital information platform and basin-wide social management system to support community-wide activities.

A farmer irrigating his field (in Irrigation Area no. 3 of Rashda Village, Dakhla Oasis)

Drainage ponds scattered over fields in the western region of the Dakhla Oasis

Establishment, implementation, and dissemination of a model for sustainable use of water and land with the residents of the oasis

The project is expected to establish a comprehensive participatory system to enable the sustainable use of water and land resources in the desert oases of western Egypt, a system that will help achieve compatibility between the livelihood of local residents and environmental conservation. This methodology will then serve as a prototype for building a sustainable society that takes into account a wide range of environmental and social conditions in a comprehensive manner.

Detailed planning survey at NARSS

Research Institutions in Egypt	National Authority for Remote Sensing and Space Sciences (NARSS), New Valley University
Research Institutions in Japan	Sophia University / The University of Tokyo / Chiba University / University of Tsukuba / Japan International Research Center for Agricultural Sciences
Research Period	5 Years

05 = Utilization Technology of Rubber Seeds for Green Products to Mitigate Global Warming and Plastic Pollution =

“Natural rubber seeds”, the unlimited potential hiding in natural rubber plantations

Adoption Fiscal Year FY 2023

A natural rubber plantation in Thailand, the world’s largest producer of natural rubber

Principal Investigator
Associate Prof.
KANEHASHI Shinji

Graduate School of Engineering, Tokyo University of Agriculture and Technology

Kingdom of Thailand

Principal Investigator
Prof.
Suwabun Chirachanchai

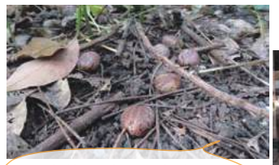
The Petroleum and Petrochemical College, Chulalongkorn University

Utilization of the highly potential of natural rubber seeds: from collection to thorough utilization

Against the backdrop of environmental issues such as global warming and marine debris, Thailand is aiming for sustainable economic development under the BCG (Bio-Circular-Green) economy model, which aims to achieve carbon neutral society and to reduce economic disparities among industries by utilizing renewable resources and resource recycling. Therefore, a partnership between Japan and Thailand establishes a sustainable biomass procurement system, develop green products, and build a value chain for social implementation by utilization of natural rubber seeds, still an untapped biomass resource in the natural rubber industry.

Creating social impact through the added value of natural rubber seeds

Creation of a new biomass industry by reviewing the value of natural rubber seeds and building a value chain. The value of the seeds will lead to higher profits for producers and a reduction in economic disparities between industries. In addition, the expanded use of the green products making from rubber seeds can contribute to mitigating social problems related to the environment and resource depletion.



Natural rubber seeds, an unutilized resource, left neglected at a natural rubber plantation

Test extraction of the vegetable oil contained in natural rubber seeds

Research Institutions in Thailand	Chulalongkorn University / Kasetsart University / Walailak University / Thailand National Science and Technology Development Agency (NSTDA)
Research Institutions in Japan	Tokyo University of Agriculture and Technology / Osaka Metropolitan University / Kyoto Institute of Technology / University of Tokyo / Nippon Institute of Technology / Japan International Research Center for Agricultural Sciences (JIRCAS) / University of Hyogo
Research Period	5 Years

06 = Risk-based Participatory WASH Planning and Citizen-data WASH Statistics for African Peri-urban Settlements =

Experienced, not taught - Realizing safe water, sanitation and hygiene in Africa

Adoption Fiscal Year FY 2023

A toilet in a low-income community on the periphery of Lusaka. The cloth-covered toilets have holes to hold excrement, but there are no lids, and the contents overflow during the rainy season.

Principal Investigator
Associate Prof.
HARADA Hidenori

The Center for African Area Studies, Kyoto University

Republic of Zambia

Principal Investigator
Dr. Kawawa Banda

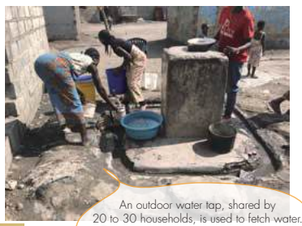
Senior Lecturer, Integrated Water Resource Management Centre, University of Zambia

Participative visualization of diarrhea risk to design your own WASH plan

Cholera outbreaks sporadically occur in low-income areas of peri-urban Lusaka, the capital of Zambia. People own cell phones but not sanitary lavatories. Water, sanitation and hygiene are not simply an issue of money, but of prioritization. Supported by an app to be developed under the project, residents themselves will examine the contamination around them and visualize the risk of diarrhea. By “experiencing” potential risks rather than “being taught” about these, residents will be better able to design their own remedial measures and implement them proactively.

The prevention of diarrhea and cholera in African urban slums with poor sanitation

By having residents design risk-based improvement plans by themselves and practicing improvement activities based on their actual experience, contamination of water and food and outbreaks of diarrhea and cholera can be prevented, leading to the realization of a healthier and more hygienic way of life. The project will create a new type of practical science to solve serious social problems by combining citizen science with advanced science.



An outdoor water tap, shared by 20 to 30 households, is used to fetch water. The faucet is located right on the ground due to the low water pressure. Water is stored at home, but contamination occurs by the time it is consumed.

Young people in the community testing samples they have collected for coliform bacteria

Research Institutions in Zambia	University of Zambia / Lusaka City Council – Department of Public Health / Lusaka Water Supply and Sanitation Company
Research Institutions in Japan	Kyoto University / Tohoku University / Hokkaido University
Research Period	5 Years

07 = Establishing Sustainable Water Supply System Resilient to the Contamination of Drinking Water Sources =

From grossly contaminated river water to drinking water!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof.
FUJIOKA Takahiro

Graduate School of Engineering, Nagasaki University

Socialist Republic of VietNam

Principal Investigator
Professor
TRAN Thi Viet Nga

Faculty of Environmental Engineering, Hanoi University of Civil Engineering

Reduce the startup and operational costs of advanced water purification by 80%!

River water is the main source of drinking water in Southeast Asia, including Vietnam, but increasing pollution means regular treatment methods cannot guarantee its safety. The high startup costs and operational costs of advanced water treatment methods capable of removing these pollutants prevent their widespread use in developing countries. In this project, we are developing an advanced water treatment method that is cheap, uses very little energy, and uses locally procurable components, as well as water quality measurement technology to enable online water safety monitoring.

Studying the pollution level of river water

Sustainable water supply for residents and industry

This project will expand the use of advanced water treatment in water-using facilities (purification plants, commercial buildings, and industries using industrial water) in developing countries, benefiting society by providing a sustainable supply of safe, cheap water to residents and industry. It will also help promote production by Japanese companies and organizations in those regions by supplying them with low-cost thoroughly treated water.

Display for monitoring the operational status of all the water purification plants in Haiphong City

Inspecting water supply equipment installed under a JICA Grant Assistance Project

Research Institutions in VietNam	Hai Phong Water Joint Stock Company / Thuy Loi University / Hanoi Architectural University / Vietnam Water Supply and Sewerage Association / Ministry of Construction / DNP Water / Hanoi University of Civil Engineering
Research Institutions in Japan	The University of Kitakyushu / Ryukoku University / Nagasaki University / National Institute of Advanced Industrial Science and Technology / Kyoto University / Kyowakiden Industry Co., Ltd. / Kyowakiden Vietnam Co., Ltd. / Fuso Corporation / Mitsubishi Chemical Aqua Solutions Co., Ltd.
Research Period	5 Years

08 = Development of Easy-operation High-tech Analytical Devices and Human Resource for Food Safety and Environmental Quality Control =

Toward resolving environmental pollution through technology and personnel capable of on-site analysis!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof. MAWATARI Kazuma

Graduate School of Information, Production and Systems, Waseda University

Socialist Republic of VietNam

Principal Investigator
Director / Prof.
Noi Nguyen Van

Key Laboratory of Advanced Materials for Green Growth, VNU

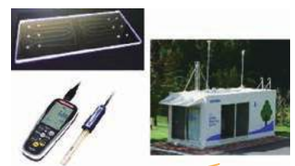
The Analysis R&E Center in the new VNU Hoa Lac campus building (the base for technology development and human resource training in this project)

Develop device technology and personnel capable of analyzing water and air quality on-site

In Vietnam, analysis systems in analysis laboratories cost time, money, and labor and are often unable to deal with environmental issues, creating a bottleneck. We are therefore developing microflow device technology, electrochemical detection technology, and monitoring technology to enable on-site air and water analysis. In collaboration with the Vietnamese Ministry of Agriculture and Environment, we are also developing a certification system for qualified analysts and training analysis personnel as well as engaging with big data science in order to establish an on-site analysis system..

Resolving environmental problems by closing up the mesh of environmental analysis

Our aim is to help resolve Vietnam’s environmental issues by developing an on-site analysis system capable of a large volume of environmental analysis on a daily basis, both contributing to the sustainable development of the country, which is undergoing rapid economic growth, and encourage networking between personnel in industry and academia in Japan and Vietnam. Extending this model to other developing countries will also contribute to resolving global environmental issues.



IoT analysis devices and monitoring station

Analyst training

Environmental pollution in Bac Ninh Province

Research Institutions in VietNam	VNU University of Science / Ministry of Agriculture and Environment (MAE) / Bac Ninh Department of Agriculture and Environment (DAE)
Research Institutions in Japan	Waseda University / The University of Tokyo / DKK-TOA CORPORATION / HORIBA, Ltd.
Research Period	5 Years

09 = Development of Palm Oil Mill Effluent (POME) Treatment System for Sustainable Energy Production and Resource Recovery based on Material Innovation =

Recover water, electric power, and mineral resources from palm oil mill effluent!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof.
YOSHIDA Naoko
Institute of Materials and Systems for Sustainability, Nagoya University

Principal Investigator
Vice-Chancellor Prof. Datuk Ir Ts Dr Ahmad Fauzi Ismail
Universiti Teknologi Malaysia


Palm plantation

Materials innovation plus methane fermentation/ electricity generation/photosynthesis equals resource recovery water treatment

Malaysia is the world's second largest producer of palm oil, but milling effluent has been shown to cause water pollution. In this project, we are developing a system to use milling effluent to produce methane gas, recover electric power by using microbial fuel cells, and collect nutrient salts by photosynthesis, as well as manufacturing reclaimed water from the treated water. By encouraging or suppressing the microbial reactions in each process, and by developing materials that increase the capacity to isolate the substances concerned, we will establish a highly efficient water treatment process for resource recovery.

Turning effluent treatment into a resource recycling system to create new value

Transforming conventional energy-consuming water treatment into a resource-recycling process will not only resolve water pollution issues but also greatly reduce greenhouse gases, improving the sustainability of palm oil production. This will be an important model case as a form of environmental infrastructure for the fuel production created by carbon fixation from widespread photosynthesis.


Palm oil milling effluent water treatment plant


Visiting the Tenaga National Research Institute

Research Institutions in Malaysia	Universiti Teknologi Malaysia / Malaysia Palm Oil Board / Tenaga National / Berhad Research / National Hydraulic Institute of Malaysia
Research Institutions in Japan	Nagoya University / Nagoya Institue of Technology / Kyoto University
Research Period	5 Years

10 = Strengthening Tropical Forest Resilience Based on Management and Utilization of Genetic Resources Capable of Climate Change Adaptation =

Tackling climate change issues by selecting and planting resilient forestry seedlings!

Adoption Fiscal Year FY 2021

Principal Investigator
Prof. Dr. TANI Naoki
Senior Researcher, Forestry Division, Japan International Research Center for Agricultural Sciences (JIRCAS)

Principal Investigator
Prof. Dr. Ir. Mohammad Na'iem
Professor, Faculty of Forestry, Universitas Gadjah Mada

Utilize genomic data to select tree species that are highly resilient to climate change

In this study, we are focusing on six tree species that are suitable for tropical forest regeneration and social forestry (community-based forest management), using genomic information (the sequence of bases in DNA) to select exceptional individual trees that exhibit greater resistance to climate change, and establishing the technology for the mass production of samplings from these exceptional trees by means such as cell culture. We are evaluating the effect of this in promoting forestry with greater resilience to climate change by assessing the amount of timber produced and ecological functions (including greenhouse gas absorption and the amount of non-timber resources) from the viewpoints of local communities and the local economy, in order to ascertain the necessity and value of forestry promotion in scientific terms.


Studying the genetic resources of tropical forests in the partner country

Making tropical forestry a sustainable industry even under climate change


Measuring the trunk growth of one of the types of tree studied (dipterocarp)

We will create international and regional incentives for afforestation designed to cope with climate change, and improve the current forestry industry to enable the sustainable use of forest resources even under climate change. Going forward, this will lead to the development of environmentally, economically, and socially sustainable forest management models using saplings highly adapted to climate change, which will encourage climate change adaptation and mitigation


Surveying the seedling cultivation process, ready to select on the basis of genomic data


Young teak trees that will produce high-quality timber, with maize cultivation on the forest floor

Research Institutions in Indonesia	Universitas Gadjah Mada/ National Research and Innovation Agency
Research Institutions in Japan	Japan International Research Center for Agricultural Sciences (JIRCAS) / Sumitomo Forestry Co., Ltd. / University of Tsukuba / Forestry and Forest Products Research Institute / Nagasaki University / National Institute for Environmental Studies (NIES) / Kansai University
Research Period	5 Years

11 = Establishment of Risk Management Platform for Air Pollution in Cambodia =

Develop human resources to solve air pollution problems in Cambodia! Observation, analysis then countermeasures

Adoption Fiscal Year FY 2021

Principal Investigator
Prof. FURUUCHI Masami
Faculty of Geosciences and Civil Engineering, Institute of Science and Engineering, Kanazawa University

Principal Investigator
Director/H. E. Dr. Po Kimtho
Institute of Technology of Cambodia

Establish an Air Monitoring Network for State-of-the-Art Air Pollution Science and a Framework for Human Resource Development


Evening traffic congestion at a corner nearby ITC

Air pollution in Cambodia is escalating due to rapid economic growth, which has boosted emissions from traffic, construction, and the open burning of waste and agricultural residues. Critically, there's a severe lack of human resources with the scientific expertise to evaluate and manage this situation effectively. This project seeks to bridge that gap through a robust collaboration between Cambodian universities and Ministry of Environment (led by the Institute of Technology of Cambodia) and Japanese universities (led by Kanazawa University). Together, they will build a platform featuring an air monitoring network, research facilities, and a sustainable structure for human resource development, ultimately working to sustainably reduce environmental risks from air pollution in the future.


Visit to the monitoring site at the MoE rooftop


GPS signal test on the ITC roof, with a view of construction in the center of Phnom Penh

Developed Human Resources Will Contribute to Clean Air in Cambodia

Through this project, we will cultivate both research leaders and engineers proficient in managing the monitoring network and young researchers empowered to initiate cutting-edge research in atmospheric science and engineering. The environmental information collected will be crucial for advancing research focused on reducing environmental risks.


The kickoff meeting of the SATREPS project for air pollution in Cambodia (ITC, 19, Sep. 2022)

Research Institutions in Cambodia	Institute of Technology of Cambodia / University of Health Sciences / National University of Management / Ministry of Environment
Research Institutions in Japan	Kanazawa University / Nagasaki University / Osaka Metropolitan University / Osaka Ohtani University / Shunan University / University of Occupational and Environmental Health
Research Period	5 Years

12 = Innovation of Science and Technology on Natural Rubber for Global Carbon Process =

Time to switch from fossil-fuel-derived materials to those made from sustainable natural rubber!

Adoption Fiscal Year FY 2021

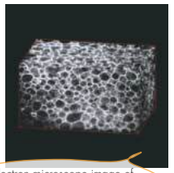
Principal Investigator
Prof. YAMAGUCHI Takashi
Graduate School of Engineering, Nagaoka University of Technology

Principal Investigator
Assoc. Prof. Phan Trung NGHIA
Director of Center for Rubber Science and Technology, Hanoi University of Science and Technology

Refinement of protein-free natural rubber, its product development, and biodegradation technology for resource recycling

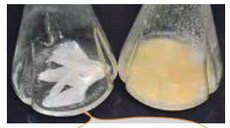
This study focuses on natural rubber, with the aim of laying new industrial foundations with this sustainable biological resource. We are starting out by developing technology for the mass production of natural rubber materials from which the natural rubber proteins, which are the cause of allergies and diminished performance, have been removed. We will then work toward the development of automobile tires and rubber products for medical use from these protein-free natural rubber materials, technology for the biodegradation of natural rubber products, and environmentally friendly wastewater treatment technology, which overall will reduce global warming.


Collecting natural rubber (field latex) from a Hevea rubber tree


Electron microscope image of a nanomatrix, an example of the science of natural rubber

Reducing global warming by creating a world based on the science of natural rubber

This project aims to strengthen intellectual property related to protein-free natural rubber and promote its international standardization, creating a natural rubber industry to replace conventional synthetic rubber. We are also aiming to create environmental preservation industries related to the resource recycling of natural rubber. Transforming society through the use of materials derived from natural rubber will also reduce global warming.


Decomposition of a latex glove by natural rubber-decomposing bacteria


Making a water/natural resources recycling device for recycling resources from natural rubber processing

Research Institutions in VietNam	Hanoi University of Science and Technology
Research Institutions in Japan	Nagaoka University of Technology / Tottori University of Environmental Studies / National Institute of Technology, Tokyo College / National Institute of Technology, Numazu College/ National Institute for Environmental Studies / Sumitomo Rubber Industries, Ltd./ Sumitomo Riko Company Ltd. / Shiraishi Calcium Kaisha, Ltd. / Shiraishi Central Laboratories Co., Ltd. / National Institute of Technology (KOSEN), Kure College.
Research Period	5 Years

13 = Development of Innovative Climate Resilient Technologies for Monitoring and Controlling of Water Use Efficiency and Impact of Salinization on Crop Productivity and Livelihood in Aral Sea Region =

Achieve sustainable agriculture through active use of real-time data and halophytes!

Adoption Fiscal Year FY 2020

Principal Investigator
Prof. TANAKA Kenji

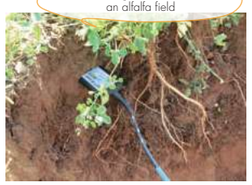
Disaster Prevention Research Institute, Kyoto University

Principal Investigator
Director, Xabibullaev Baxitjan Sagidullaevich

International Innovation Center for Aral Sea Basin (IICAS) under the President of the Republic of Uzbekistan

Selection of crops for circular halophytes mixed farming (CHMF) and utilization of real-time data

Years of irrigation-based agriculture have shrunk the Aral Sea, and salt damage and drought are becoming increasingly severe in the surrounding area. This project is designed to use climate data and information from earth observation satellites to grasp conditions in the area around the Aral Sea: the amount of usable water resources, the amount of evapotranspiration, and the status of crop growth. In addition, we will work to prevent the worsening of salinity problems by developing a sustainable agricultural model that combines appropriate irrigation drainage management methods, halophyte-based biological restoration of saline soil, and cultivation of crop species that use water efficiently.


Monitoring soil moisture in an alfalfa field

Development of a circular business model for managing agricultural land, water, and salt


A camel and halophytic plants from the Alhagi family

We will explore and propose optimal combinations of crop species from the standpoints of resistance to drought and salt, ability to remove salt from soil, and efficient use of water, in order to realize resource-efficient, sustainable agriculture through irrigation and drainage management based on the amount of water resources available, the amount of evapotranspiration taking place and the status of crop growth, and through active cultivation of halophytes in salinity-affected areas.


Sheep eating a feed mixture containing halophytes


Measuring soil moisture and electrical conductivity

Research Institutions in Uzbekistan	International Innovation Center for Aral Sea Basin / Uzbek Hydrometeorology Institute / Tashkent Institute of Irrigation and Agricultural Mechanization Engineers / National University of Uzbekistan / Uzbek Design Research Institute / Nukus Branch of Tashkent Agrarian University
Research Institutions in Japan	Kyoto University / Kobe University / Chiba University / Mie University / The University of Kitakyushu/Tottori University
Research Period	5 Years

14 = Establishment of Integrated Forest Management System Model for Conservation of Mountain Forest Ecosystems in the Andean-Amazon =

Solve the challenges facing the Andean-Amazon region by sustainable forest management

Adoption Fiscal Year FY 2020

Principal Investigator
Re-employed Research Specialist
HIRATA Yasumasa

Forest Research and Management Organization, Forestry and Forest Products Research Institute

Principal Investigator
Prof. Zoila Aurora Cruz Burga

Faculty of Forest Sciences, La Molina National Agrarian University

Develop forest management systems that support the conservation and use of forest ecosystem services

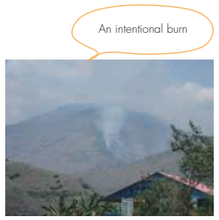
There are concerns about deterioration of ecosystem functions in mountain forest ecosystems from the Andes Mountains to the Amazon Basin as a result of disturbances caused by human activities and a lack of water resources due to climate change. Through understanding the effects of increasing forest fires and logging as well as understanding the amount of water resources available for supply, we aim to develop a forest management system that enables local residents to recieve ecosystem services while conserving the forest, and to apply that system in a way that benefits society by creating tools to support decision-making for use in management of water and forest resources by local residents.


Biomass survey: measuring tree height

Achieve sustainable conservation and use of mountain forest ecosystems through participation by local residents

Develop an integrated forest management system that makes it possible to present forest allocation that balance the resource usage needs of residents with the conservation of ecosystems. We anticipate that the use of this system will encourage local residents to conserve the fragile forest ecosystems of the Andean-Amazon region and to use ecosystem services in a sustainable fashion.


Biomass survey: establishing plots


An intentional burn


Eucalyptus plantation

Research Institutions in Peru	La Molina National Agrarian University / National Forest and Wildlife Service
Research Institutions in Japan	Forest Research and Management Organization, Forestry and Forest Products Research Institute / Chiba University / Kyushu University / Japan Forest Technology Association
Research Period	5 Years

15 = Formation of a Center of Excellence for Marine Plastic Pollution Studies in the Southeast Asian Seas =

Discover how plastic wastes are released into the oceans and clarify their impact on the ocean environment

Adoption Fiscal Year FY 2019

Principal Investigator
Prof. ISOBE Atsuhiko

Center for Oceanic and Atmospheric Research, Research Institute for Applied Mechanics, Kyusyu University

Principal Investigator
Prof. Voranop Viyakarn

Aquatic Resources Research Institute, Chulalongkorn University

Researching ways in which plastic wastes are released into the oceans and the impact of marine plastic debris on the ocean environment

The Southeast Asian region is thought to be a hotspot for marine plastic pollution. However, the influence of marine plastic on the ecosystem and human activity is not yet sufficiently clear. This project establishes a research center in Thailand to survey the ways in which plastic wastes are released into the oceans and the impact of the debris on the ocean environment. It also aims to monitor the routes of marine plastic debris from land to the ocean and the volume of plastic emitted, and to forecast future levels of marine microplastic emissions.


Giving an overview of the project at the Ministry of Natural Resources and Environment's Pollution Control Department


Marine plastic debris washed ashore on Samaesan Island, site of the survey

Proposing an action plan for mitigating marine plastic debris to the Thai government

The project will support Thailand's government in formulating a policy for reducing marine plastics based on scientific knowledge. It will also roll out the initiative in Thailand to other surrounding nations and contribute to sustainable reduction of marine plastics in Southeast Asia. Among other things, this research center is expected to play a role in demonstrating the scientific basis for bolstering policies for reducing marine plastics.


Signing the RD (Record of Discussions) at Chulalongkorn University

Research Institutions in Thailand	Chulalongkorn University / Eastern Asia University / Walailak University / Ministry of Natural Resources and Environment
Research Institutions in Japan	Kyusyu University / Tokyo University of Marine Science and Technology / Kagoshima University / Kumamoto University / Kyoto University /Tokyo University of Agriculture and Technology / Chuo University
Research Period	5 Years

16 = Development of Management Systems for Multiple Utilization of Biodiversity in the Tropical Rainforests at the Protected Areas in Sarawak =

Reveal the full scale of biodiversity in Sarawak's tropical rainforests

Adoption Fiscal Year FY 2019

Principal Investigator
Prof. ITIOKA Takao

Graguate School of Global Environmental Studies, Kyoto University

Principal Investigator
Ms. Runi Sylvester Pungga

Senior Assistant Director, Forest Department Sarawak

Building a system for assessing and utilizing tropical rainforest biodiversity

Using cutting-edge technology such as DNA barcoding, this project conducts an exhaustive survey of the distribution and state of conservation of the diverse life forms inhabiting the tropical rainforests that cover much of Sarawak. It builds data archives that store the results, creating research infrastructure for the study of biodiversity in Sarawak. It formulates education programs and community engagement programs, raises awareness among local residents regarding the value of intellectual resources regarding biodiversity, and contributes to training in scientific skills.


Open-air class on tropical rainforest biodiversity for forest science students (Lambir Hills National Park)

Enhancing multifaceted utilization and management of tropical rainforest biodiversity

This project will aid in the creation of policy proposals for the multifaceted utilization and management of tropical rainforest biodiversity based on information accumulated in data archives. It will also organize the latest information on biodiversity and provide information based on the various needs of local communities, including those of the tourist and biotech industries and scientific and environmental education.


The canopy of Sarawak's tropical rainforests, home to rich biodiversity (Lambir Hills National Park)


Collecting insects that visit flowers in forest canopies at heights of 40 meters


Surveying canopy-dwelling insects (Lambir Hills National Park)

Research Institutions in Malaysia	Forest Department Sarawak / Sarawak Forestry Corporation / Sarawak Biodiversity Center
Research Institutions in Japan	Kyoto University / Forestry and Forest Products Research Institute / Shimane University / Kyoto Prefectural University / National Institute for Environmental Studies / Tokyo Metropolitan University
Research Period	5 Years

17 = Establishment of a Sustainable Community Development Model based on Integrated Natural Resource Management Systems in Lake Malawi National Park =

Create sustainable futures by integrating practices by people in local communities with interdisciplinary science

Adoption Fiscal Year FY 2019

Principal Investigator
Prof. SATO Tetsu
SDGs Promotion Office, Ehime University

Principal Investigator
Prof. Bosco Rusuwa
Dept. of Biological Sciences, Faculty of Science, University of Malawi
Chancellor College

Improving sustainability of the natural environment and resources through integrated natural resource management


Fishing with open-water seine (chilimila net) widely used on Lake Malawi

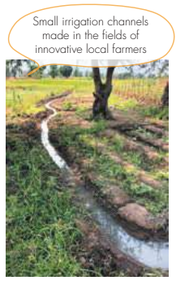
The life and livelihood of people in rural villages of Malawi, which is among the least developed countries, depends on the diverse natural resources supported by the country's rich natural environment. By integrating the latest in resource management sciences and effective initiatives based on the traditional knowledge and skills of local communities through transdisciplinary research,* this project takes adaptive approaches to improving and reinforcing the management systems of diverse resources that have been handled separately up until now, and builds integrated resource management systems that takes advantage of synergies emerging from integration.

* Transdisciplinary research is adaptive processes of co-production of knowledge, driven by repeated trials and feedbacks with close collaboration of diverse stakeholders, including scientists and innovative practitioners both within and outside local communities.


A particular variety of tree obtained from the nearby forest is the wood of choice for smoking fishery products

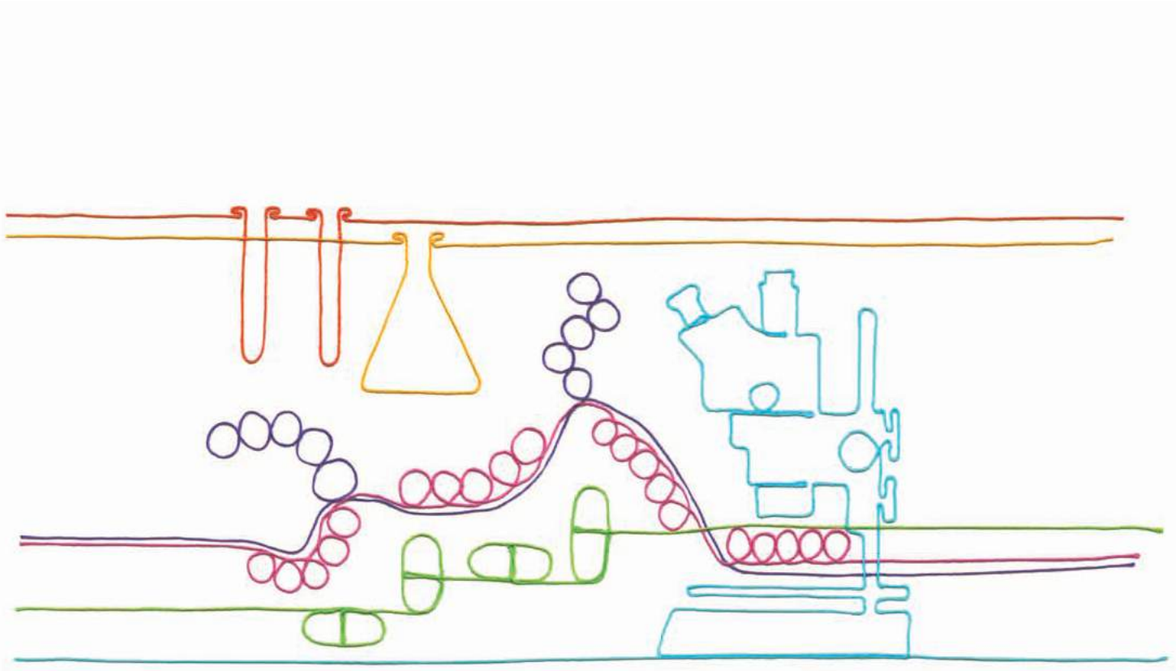
Improve people's lives and well-being with integrated resource management systems

This project will build integrated management systems of diverse resources supported by the rich natural environment through collaboration between practitioners in local communities and scientists, and establish a framework for effective decision makings and actions led by community members to achieve sustainable natural resource management Thereby, the project is expected to contribute to improving the quality of life and well-being of people.


Small irrigation channels made in the fields of innovative local farmers


People hoping for fish gather around fishing boats on their return to the village beach

Research Institutions in Malawi	University of Malawi Chancellor College / Lilongwe University of Agriculture and Natural Resources / Department of Fisheries / Department of National Parks and Wildlife
Research Institutions in Japan	Ehime University / The university of Tokyo / Tokyo University of Agriculture / Ryukoku University / Yokohama National University / Saga University
Research Period	5 Years



SATREPS 2025

Environment/Energy (Carbon Neutrality)

18 = Transforming the Cassava Production System in Vietnam by Establishing Regenerative Farming and Smart Starch Supply Chain Management =

Regenerating cassava farm land by storing carbon in the soil!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof. SHINANO Takuro

Graduate School of Agriculture,
Hokkaido University

Principal Investigator
Dr. TRAN Minh Tien

Director, Soils and Fertilizers Institute

Returning carbon to the soil by introducing regenerative agriculture

In the production areas of cassava, an important crop in Southeast Asia, farmers rely on carbon-emitting cultivation practices such as excessive tillage, low organic matter input, and intensive use of chemical fertilizers and pesticides. To prevent global warming, the achievement of carbon negativity, where more CO_2 is removed from the atmosphere than is emitted, is necessary. In this project, one of the methods for reaching carbon negativity, soil carbon sequestration, will be achieved by introducing regenerative agriculture practices to cassava cultivation. Additionally, a technology for accurately capturing soil carbon dynamics will also be developed.

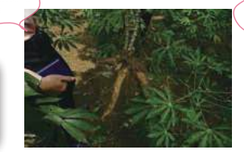
The soil of a field where good cassava varieties are grown, with a high concentration of organic matter

Contributing to the stabilization of cassava production and a sustainable supply chain

A large cassava field in Tây Ninh Province, Vietnam

The project aims to achieve soil carbon storage and the stabilization of cassava production through reform of agricultural technologies. Additionally, we will cooperate with companies seeking raw materials produced under the consideration of global warming mitigation, and in the future, establish a sustainable supply chain to contribute to a society where farmers can benefit from increased yields and carbon credits.

Surveying inside a cassava field



Harvesting cassava tubers

Research Institutions in VietNam	Soils and Fertilizers Institute / Southern Center for Soil, Fertilizer and Environmental Research / Agricultural Genetics Institute / University of Engineering and Technology, Vietnam National University
Research Institutions in Japan	Hokkaido University / RIKEN / Akita Prefectural University / Ibaraki University / Ajinomoto Corp.
Research Period	5 Years

19 = Data Driven Dynamic Transport Management in Emerging Metropolis for Climate Change Mitigation =

Mobilizing data and models to help reduce traffic congestion in Bangkok!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof. FUKUDA Daisuke

Graduate School of Engineering,
The University of Tokyo

Principal Investigator
Prof. Kasem Choocharukul

Faculty of Engineering,
Chulalongkorn University

Development and implementation of spatiotemporal flow simulation of traffic and travelers

The project plans to conduct research and development focused on controlling the spatiotemporal flow of traffic and travelers in the Bangkok Metropolitan Area, Thailand, a representative emerging metropolis. More specifically, bearing in mind the implementation of dynamic urban transport management measures, the project plans to develop methodologies for calculating and monitoring GHG emission reductions and digital twin technologies for multidimensional evaluation of the social effects of the measures, with the aim of their social implementation.

Field survey of traffic conditions (fixed-point observation, fixed camera)

Reducing CO_2 emissions by proposing appropriate urban transport management measures

The construction of a digital twin system that appropriately integrates various observation data and simulation models is expected to enable the quantitative and objective evaluation of the effectiveness of traffic management measures in reducing road traffic congestion and CO_2 emissions.

Estimation of the departure (left) and arrival (right) points of citizens based on cell phone usage data

Wide-area traffic flow survey carried out using a drone

Research Institutions in Thailand	Chulalongkorn University
Research Institutions in Japan	The University of Tokyo / University of Tsukuba / Institute of Science Tokyo / Oriental Consultants Global
Research Period	5 Years

20 = Valorization of Disposal Biomass for Chemical Production Based on Biorefinery Concept =

Opening up a new era for resources without letting them go to waste!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof. YOKOI Toshiyuki

Institute of Integrated Research,
Institute of Science Tokyo

Principal Investigator
Prof. NGAMCHARUSSRIVICHAI Chawalit

Faculty of Science, Chulalongkorn University

Resource recycling and industry creation with waste biomass

In Thailand, large amounts of waste biomass is being generated from agriculture, much of which remains unutilized and a burden on the environment. In this project, Japan and Thailand will jointly develop biorefinery technology to convert this waste into useful chemical products. The project aims to build a resource-recycling society, mitigate climate change, and revitalize local industries.

Inspection of an oil palm plantation (Surat Thani Province)

Inspection of empty fruit bunches (EFB) generated at a palm oil production plant (Surat Thani Province)

Conversion of previously unused waste biomass into high value-added products

The project is expected to convert waste biomass, which was previously left unutilized, into high value-added products, thereby realizing a recycling-oriented economy and the creation of employment in Thailand. Japan will benefit from the international deployment of decarbonized technologies, the securing of resources, and the strengthening of multilateral partnerships, while for the world as a whole, it will lead to waste reduction and the curbing of GHG emissions.

The Saraburi campus of Chulalongkorn University, where the catalytic reaction unit will be installed

Research Institutions in Thailand	Chulalongkorn University / Kasetsart University / Khon Kaen University / King Mongkut's University of Technology North Bangkok / Thailand Institute of Scientific and Technological Research
Research Institutions in Japan	Institute of Science Tokyo / Kyoto Prefectural University
Research Period	5 Years

21 = Development and Social Implementation of Greenhouse Gas Emission Reduction Technologies in Paddy Fields of West Tonle Sap Lake by Establishing a Large Paddy Area Water Management System =

Using water management to reduce methane emissions from rice paddies!

Adoption Fiscal Year FY 2023

Principal Investigator
Sub Project Leader
WATANABE Mamoru

Rural Development Division,
Japan International Research Center for Agricultural Sciences

Principal Investigator
Acting Head of Department
Mr. Thav Sopheak

Faculty of Forestry Science,
Royal University of Agriculture

Development of a water management system to reduce methane emissions from rice paddies over a large area

In the Asia-Monsoon region, which includes Cambodia, methane emitted from rice paddies is a major source of greenhouse gas (GHG) emissions. It is known that methane emissions from paddy fields can be reduced by introducing intermittent irrigation, such as alternate wetting and drying (AWD), but little verification has been conducted over large areas of paddy fields. This project will develop and socially implement a large area water management method that reduces methane emissions without reducing rice paddy yields, and a method for monitoring and evaluating GHG reductions.

Rice paddies at the model site

Drone photograph of paddy fields at the model site

Establishment of efficient water management, MRV, and methods to create incentives for farmers

The project will develop efficient water management methods from the watershed to the field level to implement intermittent irrigation over a large area, methods to measure, report, and verify (MRV) reductions in methane emissions, and methods to create incentives for farmers by utilizing carbon credits such as the Joint Crediting Mechanism (JCM) promoted by the Japanese government.

RiceGX-SATREPS Green Transformation

The official logo for RiceGX-SATREPS project

Interviewing farmers

Sampling of paddy field methane emissions using the chamber method

Research Institutions in Cambodia	Royal University of Agriculture / Institute of Technology of Cambodia
Research Institutions in Japan	Japan International Research Center for Agricultural Sciences / National Agriculture and Food Research Organization / Tokyo Gakugei University / Tokyo University of Agriculture / Hokkaido University / Kyushu University
Research Period	5 Years

22 = Development of Integrated Bio-circular Economy from Food and Energy Estate Waste Fraction to Biofuel and Bio-chemicals =

Creating a new chemical industry linked to Indonesian agriculture!

Adoption Fiscal Year FY 2023

Principal Investigator
Prof. OGINO Chiaki

Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University

Principal Investigator
Research Prof.
Puspita Lisdiyanti

Research Organization for Life Sciences and Environment, National Research and Innovation Agency (BRIN)

Putting agricultural residues to use by converting to fuel and chemicals through the power of microorganisms

In Indonesia, where agriculture is thriving, a variety of crops such as pineapple, cassava, and palm are grown on a large scale. As these crops are processed, residues (wastewater, solid residues, oils, etc.) are generated in large amounts. When disposed of, this waste generates methane gas, contributing to global warming. This research aims to make effective use of these agricultural residues and convert them into biofuels and bio-chemicals through the power of microorganisms. This will lead to the creation of a new chemical industry linked to agriculture.

Cassava being transported from farm to plant

Wastewater discarded from a palm plantation

Combating global warming by reducing agricultural residues from large-scale agriculture

If agricultural waste is converted into biofuels and chemicals, the chemical industry, which until now has been dependent on fossil resources, can evolve into a new chemical industry linked to agriculture. If this industrial structure can be changed, it will have a great impact on the securing of resources in Japan's chemical industry and assist in combating global warming.

Bench plant where biofuels and chemicals will be produced

Meeting on social implementation with the Indonesian Biofuel Council

Research Institutions in Indonesia	National Research and Innovation Agency (BRIN) / Bandung Institute of Technology / Lampung University / Padjadjaran University
Research Institutions in Japan	Kobe University / Japan International Research Center for Agricultural Sciences / The University of Shimane
Research Period	5 Years

23 = Development of Innovative Technologies for Efficient Generation of Green/Blue Hydrogen for Realization of Carbon-neutral Society with Consideration of Industrial and Environmental Characteristics in the Region =

Establishing hydrogen production technologies that fully utilize everything from solar power to underground resources!

Adoption Fiscal Year FY 2023

Principal Investigator
Prof. SUGAI Yuichi

Faculty of Engineering, Kyushu University

Principal Investigator
Dr. Zukhra Kadirova

Deputy Director, Uzbek-Japan Innovation Center of Youth

Development of hydrogen production technologies that make use of Uzbekistan's regional characteristics

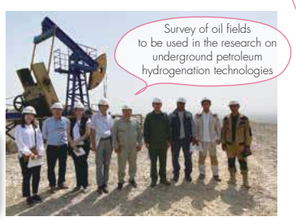
To establish a foundation for turning Uzbekistan into a hydrogen society, the project will develop a blue hydrogen production technology that produces nothing but hydrogen through the underground conversion of oil remaining in the country's old oil fields into hydrogen while sequestering byproduct CO_2 underground, a high-efficiency green hydrogen production technology that combines perovskite solar cells and steam electrolysis, and a new green hydrogen producing photocatalyst using metal slag.

Meeting concerning perovskite solar cell field tests to be conducted at the National Scientific Research Institute of Renewable Energy Sources (NSRI-RES)

Contributions to the building of a realistic and sustainable hydrogen society using existing resources

By establishing multiple hydrogen production technologies that maximize the use of resources easily procured in Uzbekistan, we will contribute to the building of a sustainable hydrogen society based on a stable hydrogen supply system. These technologies are expected to be deployed globally from Central Asian countries with similar regional characteristics as high quality technologies originating in Japan.

Fluid survey being conducted in an oil well produced from a petroleum reservoir



Survey of oil fields to be used in the research on underground petroleum hydrogenation technologies

This molecular model-like logo represents the project's philosophy of creating new values by combining hydrogen (H_2) and Uzbekistan (Uz). The symbol colors are taken from national flag of Uzbekistan and also mean green & blue hydrogen for sustainable future.

H_2Uz

Research Institutions in Uzbekistan	Uzbek-Japan Innovation Center of Youth / National University of Uzbekistan / Navoi State University of Mining and Technologies / National Scientific Research Institute of Renewable Energy Sources
Research Institutions in Japan	Kyushu University / Waseda University
Research Period	5 Years

24 = Integrated Sustainable Energy and Food Production from Microalgae-based Carbon Capture and Utilization =

Healthy people, healthy world: Transforming CO_2 with microalgae

Adoption Fiscal Year FY 2022

Principal Investigator
Team Director
MOCHIDA Keiichi

Center for Sustainable Resource Science, RIKEN

Principal Investigator
Prof. SUBROTO Toto

Padjadjaran University

The research building of Universitas Padjadjaran, where the study equipment is located.

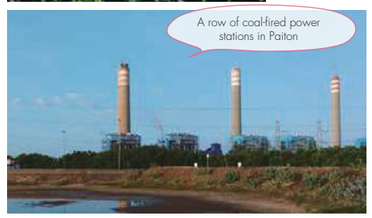
Technology to make fertilizer and fermented foods from microalgae

Indonesia is highly dependent on coal for its energy, and needs to lower its carbon emissions or decarbonize its coal-fired power stations. Malnutrition among the poor is also a serious issue, and new industries that can eliminate malnutrition and contribute to healthcare are required. In this study, we are developing technology for the large-scale culture and fermentation of microalgae, hydrogen generation from biomass, and reducing emissions from coal-fired power stations by mixed burning with hydrogen-based fuel. Based on the results, we will propose economically realistic policies.

Euglena, a species of microalgae used in industry

Fixing CO_2 with microalgae to produce fermented foods and hydrogen-based fuel

Through the development of technologies for efficient CO_2 fixation by microalgae, for using microalgae to create high-value fermented foods, for generating green hydrogen from biomass, and for the mixed burning of biomass and hydrogen-based fuels with coal, will help reduce carbon emissions by coal-powered power plants and improve nutrition with fermented health foods.



A row of coal-fired power stations in Paiton

Research Institutions in Indonesia	Padjadjaran University / Bandung Institute of Technology / Indonesia University of Education / Gadjah Mada University / National Research and Innovation Agency / Jawa Power / Awina Sinergi International
Research Institutions in Japan	The University of Tokyo / Euglena Co.Ltd / RIKEN
Research Period	5 Years

25 = Development of New Ammonia Synthesis System using Renewable Energy and Hydrogen =

From the world's strongest sunlight, making the cheapest ammonia to save Africa and Japan

Adoption Fiscal Year FY 2021

Principal Investigator
Prof. AIKA Ken-ichi

National Institute of Technology (KOSEN), Numazu College

Principal Investigator
Prof. Dmitri Bessarabov

HySA Infrastructure Centre of Competence, North-West University

Support advances in South Africa's electrolysis technology by building a new ammonia production plant with the latest Japanese technology

Visiting a HySA Infrastructure outdoor facility

South Africa depends on coal from its eastern region for 70% of its domestic energy, and also exports coal. Today, there are issues with how to green the coal and the need for a new means of distribution as a consequence. Power generated from renewable sources can only be used at the site where it is generated, and if it is changed to hydrogen this is not cheap to transport. Converted to ammonia, however, it can be transported worldwide. South Africa, which possesses cheap renewable energy and abundant precious metals for use as catalysts, and Japan, with its high-level chemical technologies, are cooperating to develop novel clean ammonia production technology with the potential to be used worldwide.

Professor Aika delivering a lecture for HySA Infrastructure staff and students

Professor Aika and lecture attendees

Greening South Africa's coal production industry, providing fertilizer to the African continent, and reducing Japan's and the world's CO_2

We are using solar ammonia produced in western South Africa to green coal. The ammonia can also be used to meet the shortage of fertilizer on the African continent. Japan has added ammonia to its new energies for use in place of coal-fired power, and the fruits may contribute to the development of new technologies within Japan. They may also be widely applicable in other countries.

HySA Infrastructure Center outdoor facility. The center uses shipping containers to conduct a range of research. The new ammonia production plant is also planned to be stored.

Research Institutions in South Africa	North-West University
Research Institutions in Japan	National Institute of Technology, Numazu College / Utsunomiya University / Chiba University / The University of Tokyo / Institute of Science Tokyo / Nagoya University / Kumamoto University
Research Period	5 Years

26 = Development of a Decarbonized Heat Energy Supply System using Ground Heat Source =

Use ground heat in arid regions to tackle both energy access and global warming!

Adoption Fiscal Year FY 2021

Principal Investigator
Prof. INAGAKI Fumiaki

Graduate School of International Resource Sciences, Akita University

Provide sustainable heat energy with a ground-source heat pump designed for arid regions

Tajikistan has few hydrocarbon resources and is dependent on hydroelectric power for 96% of its energy, one of the highest rates in the world. However, it still faces issues with energy access. In the cold season, demand for heating increases, straining the electricity supply, and restrictions are imposed in rural areas. Since the Soviet period the country has used coal as an alternative, but these facilities have become dilapidated and their use, however tempting, is not ideal from the viewpoints of both air pollution and global warming. We are therefore developing an energy-saving, clean ground-source heat pump designed for use in arid regions.

Survey of ground-water levels

Principal Investigator
Dr. Kodirov Anvar

Director, Center for innovative development of science and technologies of the Academy of Sciences of the Republic of Tajikistan

Survey of well-drilling technology

Improving energy access and tackling global warming through the use of ground heat sources

Ground heat has not been utilized because of the low water table and poor soil water content. The development of a ground-source heat pump designed for use in arid areas (Tajikistan model), will contribute to combating global warming and tackling energy access not just in Tajikistan but also in Afghanistan and other neighboring countries.

Meeting with a well-drilling company

Kickoff symposium at the Tajikistan Academy of Sciences (June 2022)

Research Institutions in Tajikistan	Center for innovative development of science and technologies of the Academy of Sciences of the Republic of Tajikistan (CIDSNT)/ Ministry of Energy and Water Resources / Ministry of Industry and New Technology / Ministry of Health and Social Protection / Dushanbe City Office.
Research Institutions in Japan	Akita University / AIST / Tsukuba University /Hokkaido University / Toyo University / Japan Groundwater Development Co., Ltd. / Zeneral Heatpump Industry Co Ltd. / EXEO Group, Inc / D.D.L. Co Ltd
Research Period	5 Years

27 = Development of a Carbon Recycling System toward a Decarbonized Society by using Mineral Carbonation =

Absorb carbon dioxide by means of mineral carbonation, and clean up the environment at the same time

Adoption Fiscal Year FY 2020

Principal Investigator
Prof. IIZUKA Atsushi

Graduate School of Environmental Studies, Tohoku University

Concrete demolition debris outside of Cape Town

Develop a carbon recycling system using mineral carbonation as a step toward climate neutrality

The cement industry is taking various approaches to the reduction of CO_2 emissions. Our approach is to focus on process-related CO_2 emissions that account for 60 percent of the industry's CO_2 emissions, and to develop a carbon recycling system based on performing mineral carbonation of alkaline by-products and waste materials. The resulting carbonates are recycled for use in cement production. Resources that cannot be recycled are used as environmental purification materials, thereby creating a new circulation loop.

Principal Investigator
Prof. Tunde Victor Ojumu

Cape Peninsula University of Technology (CPUT)

Use mineral carbonation to reduce carbon emissions, and contribute to the circular economy with environmental purification materials

We are advancing toward carbon neutrality by developing technologies with low CO_2 marginal abatement costs for making equipment that can easily be procured, operated, and maintained by entities in developing countries. In addition, low-cost, useful products like environmental purification materials made from alkaline by-products and waste products are being developed, and it is expected that they will be used also for the treatment of acid mine drainage.

Environmental pollution caused by acid mine drainage in South Africa

Research Institutions in South Africa	Cape Peninsula University of Technology / University of Cape Town / University of the Western Cape / Council for Geoscience
Research Institutions in Japan	Tohoku University / Seikei University / Fukuoka Institute of Technology / Taiheiyo Cement Corporation
Research Period	5 Years

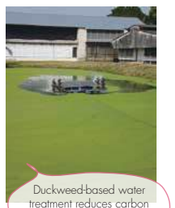
28 = Development of the Duckweed Holobiont Resource Values towards Thailand BCG Economy =

Discover the power of microbial symbiosis and help realize a resource-recycling society

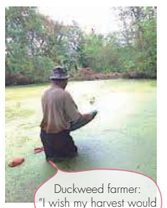
Adoption Fiscal Year FY 2020

Principal Investigator
Prof. MORIKAWA Masaaki

Faculty of Environmental Earth Science, Hokkaido University



Duckweed-based water treatment reduces carbon footprint and cuts duckweed production costs



Duckweed farmer: "I wish my harvest would be more reliable ..."

Establish a holobiont resource research center to study combination of duckweed and coexisting microorganisms

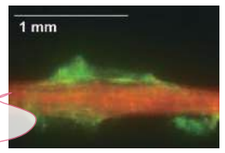
Contribute to the construction of a sustainable society by utilizing plants in the Lemnaceae family (duckweeds), which have high resource value and can grow in contaminated water where there is a high concentration of CO_2. Specifically, (1) create a biobank of complex organisms consisting of duckweed and coexisting microbes, (2) understand and enhance microbial symbiosis that accelerates the growth rate of duckweed, (3) develop low-carbon water treatment technologies and duckweed production technologies, (4) manufacture biofuels, bioplastics, and livestock feeds, and (5) improve edible duckweed productivity and develop highly functional foods.

Principal Investigator
Prof. Arinthip THAMCHAIPENET

Faculty of Science, Kasetsart University

Develop greenhouse gas reduction technologies and valuable resources ranging from duckweed foods to biofuel

Contribute to the Bio-Circular-Green (BCG) economic model being promoted by the Thai government and to carbon offsetting by simultaneously addressing everything from development of duckweed-based bioresources to the creation of new industries.



Microscopic view of duckweed holobiont

Courtesy visit to the president and dean of the Faculty of Science at Kasetsart University

Research Institutions in Thailand	Kasetsart University / Khon Kaen University / Chulalongkorn University / Mahidol University / Nakhon Pathom Rajabhat University / BIOTEC / NANOTEC / Advanced GreenFarm
Research Institutions in Japan	Hokkaido University / Kyoto University / Osaka University / Tohoku University / University of Yamanashi / National Institute for Environmental Studies / Saraya Co., Ltd.
Research Period	5 Years

29 = Development of Low-Carbon Affordable Apartments in the Hot-Humid Climate of Indonesia towards Paris Agreement 2030 =

Achieve comfortable living environment in Indonesia using affordable low-carbon technologies

Adoption Fiscal Year FY 2019

Principal Investigator
Prof. KUBOTA Tetsu

Graduate School of Advanced Science and Engineering, Hiroshima University

Developing low-carbon technologies suitable to hot-humid regions with the aim of implementing them in society

Under the Paris Agreement signed in 2016, developing countries have targets for reducing greenhouse gas emissions. Securing healthy, comfortable housing is a priority in countries with insufficient living standards, but low-carbon targets have to be met as well – achieving both goals is not easy. Targeting high- and medium-high-rise apartment housing, which is becoming more prevalent in Indonesia, this project develops low-carbon construction technologies suitable to hot-humid regions. It aims to have the technologies incorporated into actual buildings and into national standards and other legally-binding construction regulations.

Experimental housing built in Indonesia with vertical void inside

Principal Investigator
Dr. Muhammad Nur Fajri Alfata

Engineering Researcher, Division of Building Sciences, Directorate for Settlements and Housing Engineering Development, Ministry of Public Works

Meeting with the central government in Indonesia

Low-carbon apartment housing that can contribute to achieving Paris targets

By implementing both hardware and software aspects of comprehensive low-carbon technologies, this project will contribute to Indonesia for achieving its greenhouse gas reduction targets under the Paris Agreement through the application of low-carbon technologies in Indonesia's building sector. Subsequently, it will aim to expand research facilities in Indonesia and disseminate and share information with neighboring countries.

Kick-off meeting in Tokyo

Research Institutions in Indonesia	Directorate for Settlements and Housing Engineering Development, Ministry of Public Works / City of Tegal / Agency for Meteorology, Climatology and Geophysics (BMKG) / Bandung Institute of Technology (ITB) / Indonesia University of Education (UPI) / Sepuluh Nopember Institute of Technology (ITS) / University of Brawijaya (UB) / University of Indonesia (UI) / The YKK AP R&D Center of Indonesia
Research Institutions in Japan	Hiroshima University / Institute of Science Tokyo / Kagoshima University / Shinshu University / Waseda University
Research Period	5 Years

30 = Comprehensive Solutions for Optimum Development of Geothermal Systems in East African Rift Valley =

Resolve issues slowing use of the Great Rift Valley's geothermal resources

Adoption Fiscal Year FY 2019

Principal Investigator
Prof. FUJIMITSU Yasuhiro
Faculty of Engineering, Kyushu University

Principal Investigator
Prof. Bernard W. IKUA
Deputy Vice Chancellor, Jomo Kenyatta University of Agriculture and Technology (JKUAT)

Olkaria II geothermal power plant, the target field of this project

Solving issues to achieve optimum development of the Great Rift Valley's unique geothermal systems

Kenya is in the process of switching its main source of power from hydropower, which is unstable due to frequent droughts, to geothermal power, which has high power generation potential and enables stable supply. This project aims to resolve issues at every stage, from planning through to actual energy use, and promote sustainable geothermal energy use in Kenya and surrounding nations through the utilization of hybrid exploration geophysics, development of models of geothermal systems unique to the Great Rift Valley, and establishment of methods of dealing with scaling in order to improve the operational efficiency of power plants, as well as by proposing scenarios for improving acceptance of geothermal heat use by society.

Contributing to achieving SDGs by utilizing geothermal heat, a stable, renewable energy source

The outcome of this project is expected to contribute to achieving the Kenyan government's goal of increasing the capacity of geothermal power generation facilities to 5,000MW by 2030 as well as contribute to the government's Kenya Vision 2030 economic development plan to turn Kenya into an industrial nation. Kenya's renewable energy based power generation makeup will also contribute to global environmental conservation.

A heated swimming pool near Olkaria II geothermal power plant. The project proposes scenarios for utilization of heat, as well as for power generation.

Geothermal well drilling rig in the Menengai area, which includes geothermal fields in this project

Research Institutions in Kenya	Jomo Kenyatta University of Agriculture and Technology (JKUAT) / University of Nairobi (UoN) / Kenya Electricity Generating Company Ltd. (KenGen) / Geothermal Development Company Ltd. (GDC)
Research Institutions in Japan	Kyusyu University / West Japan Engineering Consultants, Inc.
Research Period	5 Years

SATREPS 2025

Bioresources

31 = Establishment of Research and Disease Control Systems for Eradication of Dourine =

Saving Mongolian horses from STIs!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof. INOUE Noboru

National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine

Principal Investigator
Director, Prof. Badgar Battsetseg

Institute of Veterinary Medicine

Devising viable methods for eradicating dourine without access to drugs or vaccines


A horse infected with dourine

Determining the nature of the dourine pathogen by studying its pathogenesis and possible changes in the host range, and strengthening Mongolia's animal quarantine system. Preventing the spread of dourine by training veterinarians specialized in artificial insemination (AI) techniques for livestock, and realizing appropriate reproductive management of horses using techniques such as AI. The project also plans to propose standards for quarantine and breeding management of horses and measures against dourine to relevant government agencies, thereby preventing the epidemic of dourine from an institutional perspective and paving the way for its eradication.


Blood sampling for dourine antibody research

Promotion of livestock production and a move away from a monoculture economy through livestock breeding management


A pastoralist milking a horse

Proper management of breeding improves the productivity and health of livestock. Consequently, a breeding management method targeting dourine control is a first step towards improving the breeding management system for all livestock in Mongolia. As a result, the production of superior livestock and livestock products is expected to promote the livestock industry in Mongolia and help the country move away from its mining-dependent economy.

Explanation of the project at a regional veterinary office

Research Institutions in Mongolia	Mongolian University of Life Sciences / General Authority for Veterinary Services / Ministry of Food Agriculture and Light Industry / Ministry of Economy and Development, / Ministry of Education / Institute of Veterinary Medicine
Research Institutions in Japan	Obihiro University of Agriculture and Veterinary Medicine
Research Period	5 Years

32 = Development of the Sustainable and Diversified Rice Farming System by Reflecting the Importance of Forest Functions =

Brighten the future of African agriculture with synergy between food production and forest conservation!

Adoption Fiscal Year FY 2024

Principal Investigator
Dr. TSUJIMOTO Yasuhiro

Crop, Livestock and Environment Division, Japan International Research Center for Agricultural Sciences

Principal Investigator
Director of Crop Production Support, Lovaniaina RAKOTONDRANAIVO

Ministry of Agriculture and Livestock

Simultaneously providing production stabilization technologies and scientific evidence in support of forest functions


Development of cultivation technology that increases paddy rice yield while reducing chemical fertilizers and GHGs

In Madagascar, the problems of rural poverty and forest loss due to the expansion of farmland are growing increasingly serious. Under this project, innovative technologies will be developed to increase the productivity and crop diversity of paddy fields, the main form of agricultural land in Madagascar, while also quantifying forest functions that support paddy field production. By reflecting the technologies and scientific findings obtained during the project in extension activities and policies, the project aims to halt the negative cycle of unstable food production and degraded watershed environments, and to facilitate the shift to a sustainable food production system.


Examples of upstream forest loss and downstream sediment influx into rice paddies seen in northwestern Madagascar

The presentation of a role model that simultaneously contributes to the solution of Africa's food and environmental challenges


Development of technology to increase vegetable and legume production using microorganisms

By focusing on rural areas in Africa, where the problems of unstable food production and environmental impacts are most apparent, and by presenting concrete practical examples of simultaneous solutions, the project will contribute to poverty reduction, improved nutrition, and sustainable agriculture in Africa by spreading similar approaches both within Madagascar and abroad.

Research Institutions in Madagascar	Ministry of Agriculture and Livestock/ Ministry of Environment and Sustainable Development / National Nutrition Office / University of Antananarivo / National Center for Applied Research in Rural Development / National Environment Research Center
Research Institutions in Japan	Japan International Research Center for Agricultural Sciences / The University of Tokyo / Kyoto University / University of Tsukuba / University of Yamanashi / Forestry and Forest Products Research Institute
Research Period	5 Years

33 = Development of Sustainable Seaweed Based Functional Products for Promoting Blue Economy =

Promoting the blue economy by utilizing seaweed resources!

Adoption Fiscal Year FY 2023

Principal Investigator
Prof. ICHIKAWA Sosaku

Institute of Life and Environmental Sciences, University of Tsukuba

Principal Investigator
Prof. Hari Eko IRIANTO

Research Center for Marine and Land Bioindustry, National Research and Innovation Agency (BRIN)


Seaweed cultivation

Development of fundamental technologies to sustainably produce functional products using seaweed

In Indonesia - the world's second largest producer of commercial seaweed and a place where a variety of unutilized seaweed species can be found - there are high expectations for the sustainable and advanced utilization of seaweed resources. The project will develop and consolidate academic knowledge for the efficient and environmentally friendly production of high value-added functional products made from seaweed in the food industry and other fields. Advanced seaweed cultivation methods and processing technologies will be developed using the knowledge gained, as well as production base technologies for the industrial utilization of seaweed resources.

Promotion of the blue economy through the development of functional products using seaweed

A fundamental model for the advanced use of seaweed in Indonesia will be built that globally promotes sustainable marine economy activity, the "Blue Economy," by encouraging the multifaceted industrial use of seaweed resources through the development of a series of fundamental technologies from seaweed cultivation to processing and manufacturing of functional products, as well as through environmental impact assessments and economic analysis.

* Blue economy: Sustainable economic activity related to oceans and marine environments.


Sun-dried seaweed


Dried seaweed is packed in bags for shipping


Photo at the time of M/M signing

Research Institutions in Indonesia	National Research and Innovation Agency (BRIN) / Hasanuddin University / Sahid University
Research Institutions in Japan	University of Tsukuba / Kyoto University
Research Period	5 Years

34 = Establishment of an Alert System for Fusarium oxysporum f. sp. cubense, the Banana and Plantain Wilt Pathogen, and Mitigation Strategy of the Disease =

Stop the invasion and spread of banana wilt from threatening the banana industry!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof. ARIE Tsutomu

Institute of Agriculture, Tokyo University of Agriculture and Technology (TUAT)

Principal Investigator
Prof. Liliana Aragon Caballero

Universidad Nacional Agraria La Molina (UNALM)

Propose a comprehensive package to control banana wilt with low environmental impact

We are proposing the following to local governments in the La Selva region of Peru as a comprehensive package to control banana wilt, a disease that causes crippling damage to bananas: (1) banana wilt diagnosis systems at the field and molecular levels; (2) obtaining banana lines that are resistant/resilient to banana wilt as a result of mutagenesis; (3) a disease-free sapling production/distribution system; (4) investigation of microbial ecosystems forming disease-suppressing soil; and (5) disease control methods with a low environmental impact, combining methods such as bio-pesticide.


Preparation for shipping in a small-scale banana farm in the Selva region of Peru

Ensure stable banana production and help improve farmers' standard of living

In the banana-producing region of the Selva, Peru, personnel (technicians) are being trained to advise farmers on the basis of the comprehensive package to control banana wilt, which has been adopted as technology for widespread use and is being utilized by farmers. This is helping to improve the standard of living of small-scale farmers in the Selva.


Banana wilt in a banana field in the La Selva region of Peru has turned the leaves yellow and wilted. The inset at the bottom right shows how the vascular bundles have turned brown.


Interview with farmers and advisers in a small-scale banana farm in the La Selva region of Peru.

Establishment of a method of identifying banana wilt (LAMP method). Tissue from samples of infected plants (samples 3 and 4) exhibits a positive reaction within 1 hour.

Research Institutions in Peru	Universidad Nacional Agraria La Molina (UNALM) / Instituto Nacional de Innovacion Agraria (INIA) / Universidad Nacional de la Selva (UNAS)
Research Institutions in Japan	Tokyo University of Agriculture and Technology (TUAT) / Japan International Research Center for Agricultural Sciences (JIRCAS) / Tottori University (TU)
Research Period	5 Years

35 = Recovering High-Value Bioproducts for Sustainable Fisheries in Chile (ReBiS) =

Create a new industry by effectively recovering bioproducts from fisheries waste!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof. ONODA Akira

Faculty of Environmental Earth Science, Hokkaido University

Principal Investigator
Assoc. Prof. Ronny Martinez

Department of Food Engineering, University of La Serena

Establish the technology and manufacturing foundations for high-value bioproducts from fisheries processing waste

In Coquimbo, Chile, which has a flourishing fishing industry, 14,000 tons of fisheries waste from Humboldt squid, shrimp and langoustine processing is thrown away every year; however, this fisheries waste contains a large amount of high-value bioproducts. To utilize these discarded bioproducts, we are studying the substances that comprise these biomaterials in detail and establishing processes for their purification and manufacture. We are also working toward the development and application of novel biomaterials synthesized from fine bioproducts.

Establish a localized circular economy on fishery resources in Chile

Progress is being made in the assessment and identification of high-value bioproducts in fisheries waste, the establishment of manufacturing processes for fine bioproducts, the development of novel biomaterials, and enhanced networking with those involved in the supply chain for fine bioproduct manufacture, and the recovery of fisheries waste is being promoted by the development of a localized circular economy in Chile.

Research Institutions in Chile	University of La Serena / Universidad Católica del Norte
Research Institutions in Japan	Hokkaido University / National Institute of Technology, Tomakomai College / Hokkaido Research Organization / Hokkaido Soda Co., LTD.
Research Period	5 Years

36 = Breeding Innovation in Chili Pepper and Tomato to Accelerate Sustainable Vegetable Production in Tropical Regions =

Achieve sustainable vegetable production in tropical regions using advanced breeding technology!

Adoption Fiscal Year FY 2022

Principal Investigator
Associate Prof.
KANG Seung Won

Institute of Life and Environmental Sciences, University of Tsukuba

Principal Investigator
Associate Prof.
Nono Carsono

Faculty of Agriculture, Universitas Padjadjaran

Cultivation of Tomatoes for creation of mutant pools (at Universitas Padjadjaran)

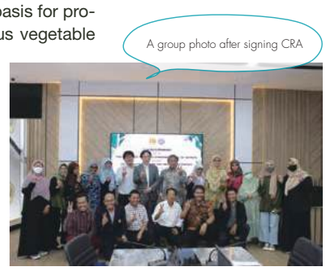
Establishing advanced breeding platform for sustainable vegetable production in Tropical Regions.

To ensure food security in preparation for rapid climate change, improve farm income, and promote public health, sustainable production and supply of vegetables is essential in tropical regions where rapid population growth and economic growth are expected in future. The project therefore aims to build an innovative breeding platform using advanced molecular breeding and genome editing technology that can rapidly develop heat tolerant tomatoes and disease resistant chili peppers in Indonesia, facing climate change in the tropical regions.

Cultivation of chili peppers for creation of mutant pools (at Universitas Padjadjaran)

Contribution to sustainable vegetable production in Indonesia and other tropical regions of the world

We will establish The Center of Advanced Breeding Technique (CAB-Tech) during the project as a core center for accelerating the vegetable breeding process as well as a basis for promoting the use of new cultivars. The CAB-Tech will enable to develop various vegetable cultivars suitable for tropical environments in the future. Using Indonesia as a model country, we will contribute to sustainable vegetable production in the tropical regions of the world.



Research Institutions in Indonesia	Universitas Padjadjaran / National Research and Innovation Agency
Research Institutions in Japan	University of Tsukuba / Japan International Research Center for Agricultural Sciences (JIRCAS) / Miyagi University
Research Period	5 Years

37 = The Establishment of an Immediate Rice Variety Development System using Anther Culture and Citizen Science =

Collaboration Between Farmers and Scientists Enables Rapid Development and Dissemination of Rice Varieties!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof. KONDO Takumi

Research Faculty of Agriculture, Hokkaido University

Principal Investigator
Chief Agricultural Research Officer
Dr. Rabson Mulenga

Zambia Agricultural Research Institute (ZARI)

Breeding high-quality rice

Building an Immediate Rice Variety Development System through Anther Culture and Citizen Science

Similar to other Sub-Saharan African countries, Zambia has a majority of its population residing in rural areas, with a significant portion living in poverty. The country is experiencing a rapid increase in rice demand, presenting an opportunity to enhance farm income through the promotion of rice cultivation. In agricultural technology development, sustainability and alignment with the local natural, social and economic environment are crucial. This research aims to establish a system for immediate rice variety development and dissemination that adapts to the local natural, social and economic conditions. By combining citizen science by active participation of farmers who are capable innovator, anther culture and basic technology of breeding, we seek to create a system that addresses the evolving needs of the local natural, social and economic conditions.

Contributing to the Establishment of a Short-Term Rice Breeding System in Africa

The immediate rice variety development system being established in the Republic of Zambia is expected to extend to other Sub-Saharan African countries. Through short-term rice variety breeding, promising breeding lines that qualify as candidates for variety registration will be consistently developed. This will also facilitate agricultural development and activities based on these breeding lines, contributing to poverty reduction in rural areas.

Research Institutions in Zambia	Zambia Agricultural Research Institute / University of Zambia
Research Institutions in Japan	Hokkaido University / University of Ryukyus/Tokyo University of Agriculture / Tohoku University / Rakuno Gakuen University / Japan International Research Center for Agricultural Sciences
Research Period	5 Years

38 = Creation of Beef Value Chain by Optimizing Ruminal Microbiota and Grassland Management on Digital Platform =

Enabling sustainable beef production by eliciting the power of cattle and grasslands on a digital platform!

Adoption Fiscal Year FY 2021

Principal Investigator
Prof. OHKURA Satoshi

Graduate School of Bioagricultural Sciences, Nagoya University

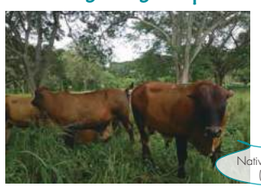
Principal Investigator
Dr. Lorena Aguayo Ulloa

AGROSAVIA

Develop smart livestock production technology using locally diverse livestock resources

In this study, we will provide smart livestock production technology to ranchers in Colombia, which has a competitive beef production industry, offering them a digital platform that small-scale farmers can use to increase their income to improve beef productivity in a tropical region with a dry season. Furthermore, we aim to utilize the genetic diversity of the ruminal microbiota and grassland diversity, which are closely linked to productivity, to enable the preservation and sustainable use of the pasture ecosystems where livestock is mainly let out to graze and to contribute to regional development through value-added livestock production.

Creating a digital platform that contributes to beef production system optimization



Native Colombian beef cattle (Romosinuano cattle)

A digital platform that provides traceability for Colombian beef will increase the productivity of local livestock communities and provide a digital certification of beef quality. Going forward, this will contribute to adopting the smart livestock regional model that supports the optimization of the beef production structure by utilizing regional characteristics.

Research Institutions in Colombia	AGROSAVIA / FEDEGAN / CIAT
Research Institutions in Japan	Nagoya University / Chubu University
Research Period	5 Years

39 = Development of Breeding and Water Management Technologies for Safe and Nutritious Rice Production =

Enabling the production of safe, nutritious rice in the world's most arsenic-polluted region!

Adoption Fiscal Year FY 2021

Principal Investigator
Associate Prof.
KAMIYA Takehiro

Graduate School of Agricultural and Life Sciences, The University of Tokyo

Principal Investigator
Prof. Md. Rafiqul Islam

Department of Soil Science, Bangladesh Agricultural University

Bangladesh Agricultural University test plot

Pump drawing up arsenic-containing groundwater for irrigation

Lay the foundations for breeding high nutritional value/low arsenic content rice and develop cultivation technology

Bangladesh is one of the world's leading growers and consumers of rice. This means that health damage caused by ingesting a poisonous element (arsenic) via rice consumption is a major social concern, as are deficiency diseases (hidden hunger) caused by the low levels of trace nutrients (iron and zinc) in rice. In this project, we are aiming to use breeding and water management technologies to establish technologies for the production of safe rice with a low arsenic content and rice with high nutritional value containing high levels of iron and zinc.

Making safe, healthy rice the norm!

Establishing technologies for breeding and cultivating safe, highly nutritious rice and encouraging their adoption in Bangladesh will improve the health of the population. The technologies obtained in the course of this project can also be used in other regions of the world facing similar problems.

Interviewing farmers in an arsenic-contaminated area

Research meeting at Bangladesh Agricultural University

Research Institutions in Bangladesh	Bangladesh Agricultural University (BAU) / Bangladesh Rice Research Institute (BRRI) / Bangladesh Institute of Nuclear Agriculture (BINA) / Department of Agricultural Extension (DAE)
Research Institutions in Japan	The University of Tokyo / The National Agriculture and Food Research Organization (NARO) / Akita Prefectural University
Research Period	5 Years

40 = Establishment of Nitrogen-efficient Wheat Production Systems in Indo-Gangetic Plains by the Deployment of BNI-technology =

Using the power of plants to reduce fertilizer waste and create a healthier global nitrogen cycle!

Adoption Fiscal Year FY 2021

Principal Investigator
Dr. TOBITA Satoshi

Specially Assigned Investigator, Japan International Research Center for Agricultural Sciences (JIRCAS)

Principal Investigator
Dr. Arun Kumar Joshi

Managing Director of Borlaug Institute for South Asia (BISA)

Start of BNI-enabled wheat system growth on a test wheat plot in the eastern Indo-Gangetic plain

Introduce BNI-enabled wheat varieties with improved nitrogen utilization to India

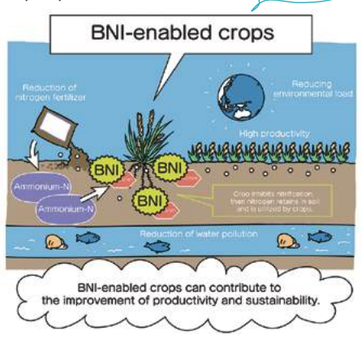
Almost half of the nitrogen fertilizer used in crop production is lost to the environment, which causes water pollution and contributes to global warming. In crops with the improved ability of biological nitrification inhibition (BNI), BNI substances secreted from the roots inhibit the nitrification process in the soil, which improves the nitrogen utilization rate and enables a high yield maintained with the application of less fertilizer. We are raising wheat varieties with high BNI function and introducing them into the wheat cultivation systems of the Indo-Gangetic plain in India, where large amounts of fertilizer are currently applied, and will evaluate their effectiveness from environmental and economic perspectives.

Reducing the amount of fertilizer has a double benefit to the local economy and the global environment.

The reduction in fertilizer use as a result of the introduction of BNI-enabled wheat varieties should have a positive effect not only on the wheat cultivators of the Indo-Gangetic plain but also on the Indian economy, which pays out large amounts in fertilizer subsidies. It should also decrease N_2O gas emissions and nitrate leaching from agricultural land, creating a healthier global nitrogen cycle.

Even with low nitrogen, BNI-enabled wheat (left) exhibits better absorption and higher yield than the original variety (right). (Tsukuba)

Overview of BNI technology (©Science Manga)



Research Institutions in India	Borlaug Institute for South Asia (BISA) / Indian Institute of Wheat and Barley Research (IIWBR) / Indian Agricultural Research Institute (IARI) / Central Soil Salinity Research Institute (CSSRI)
Research Institutions in Japan	Japan International Research Center for Agricultural Sciences (JIRCAS) / Tottori University / National Agriculture and Food Research Organization (NARO)
Research Period	5 Years

41 = Eco-engineering for Agricultural Revitalization Towards improvement of Human nutrition (EARTH): Water Hyacinth to Energy and Agricultural Crops =

Use aquatic plant biomass as a valuable resource, and solve ecosystem, social, and health problems all at once

Adoption Fiscal Year FY 2020

Principal Investigator
Prof. SATO Shinjiro

Department of Science and Engineering for Sustainable Innovation, Faculty of Science and Engineering, Soka University

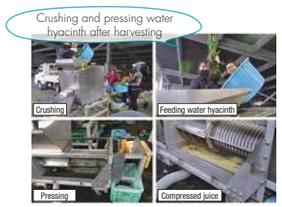
Principal Investigator
Assoc. Prof.
Solomon Addisu Legesse

College of Agriculture and Environmental Sciences, Bahir Dar University

Development of technologies for converting water hyacinth to energy, nutrients and agricultural products

Utilizing remote sensing and AI technology, the project will develop a sustainable harvesting model for water hyacinth, which is partly choking Ethiopia's largest lake, Lake Tana. The aim is to use methane fermentation treatment to recover energy and nutrients from the harvested water hyacinth, use the recovered energy and nutrients for mass cultivation of microalgae (spirulina) that are attracting attention as a superfood, and develop nutritional supplements derived from spirulina together with local companies. Integrating interdisciplinary research conducted in Japan, we will work to establish technologies for the effective utilization of waste materials as valuable resources.

Aerial view of water hyacinth overgrowth on Lake Tana (about 500 km² of overgrowth, or one sixth of the lake's surface)



Crushing and pressing water hyacinth after harvesting

Help improve health and nutrition in Ethiopia to address the wide-ranging issue of "hidden hunger"

We aim to build a sustainable water hyacinth management system using ICT, providing a model for approaches using water hyacinth to eventually solve ecosystem and social problems. In addition, the development of spirulina-derived dietary supplements and adoption of such supplements in Ethiopia will help to alleviate the country's health and nutrition problems.

Cultivating spirulina in a raceway pond

Research Institutions in Ethiopia	Bahir Dar University / Injibara University / Lake Tana and Other Water bodies Protection and Development Agency
Research Institutions in Japan	Soka University / The University of Shiga Prefecture / Lake Biwa Environmental Research Institute
Research Period	5 Years

42 = Project for Development of Complex Technologies for Prevention and Control of Rubber Tree Leaf Fall Diseases =

Protect rubber trees from leaf fall diseases by using a multifaceted scientific approaches

Adoption Fiscal Year FY 2020

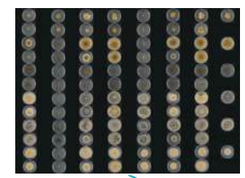
Principal Investigator
Senior Visiting Scientist
MATSUI Minami

Center for Sustainable Resource Science, RIKEN

Principal Investigator
Dr. Suroso Rahutomo

Indonesian Rubber Research Institute Director

Aerial view of rubber field: trees have no leaves due to infection



Pesticide screening

Connect rubber-producing countries and consuming countries through early-stage measures against rubber tree leaf fall diseases

Infection of rubber leaf fall diseases has been widely spread in Southeast Asian countries and causes serious damage to rubber production. Through cooperation with Indonesian Rubber Research Institute and Universitas Indonesia, we aim to exterminate the disease by chemical and microbial pesticides, establish a genome-assisted breeding technology, and detect infected areas in the early stages by using images from satellites and drones, and prevent leaf blight and control the spread of infections.Through this link between Japan and a resource-producing country, we will also produce research leaders who can contribute to breeding that takes advantage of modern science and technology as well as local resources.

Enabling stable supply of natural rubber that meets growing global demand

Southeast Asia supplies more than 90 percent of the world's natural rubber. Because Southeast Asian rubber trees are reproduced by clonal propagation, they end up being infected with the same diseases. By sharing the technology we develop with countries that produce natural rubber, the project will contribute to realizing stable supplies of natural rubber that meet the world's demand and stable livelihoods for rubber farmers.

Leaf fall disease infected rubber tree

Symptoms of leaf fall disease

Research Institutions in Indonesia	Indonesian Rubber Research Institute / Universitas Indonesia
Research Institutions in Japan	RIKEN Center for Sustainable Resource Science / Gifu University / RIKEN Center for Advanced Photonics (RAP) / Maebashi Institute of Technology / Yokohama City University
Research Period	5 Years

43 = Development of Novel Disease Management Systems for Banana and Cacao =

Bring new ideas to the fight against intractable banana and cacao crop diseases!

Adoption Fiscal Year FY 2020

Principal Investigator
Prof. WATANABE Kyoko
College of Agriculture, Tamagawa University

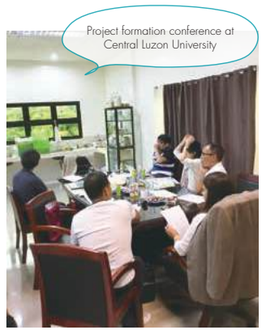
Principal Investigator
Dr. Parsons N. Hail
Associate Professor of Communication and Development Studies, Director of International Affairs Office, Central Luzon State University (CLSU)

Development of new technological systems that control major diseases affecting bananas and cacao

Bananas and cacao are important crops for food security and economic development in developing countries, but they are subject to intractable diseases for which control methods have not been established. In order to rein in these diseases, we propose to introduce comprehensive disease control management systems by developing diagnostic kits and disease outbreak prediction apps, and by optimizing methods of biological soil disinfestation, fertilizer management and cultivation management. In addition, we intend to collect various fungi, including pathogens, from banana and cacao plantations, to construct a microbe library and make effective use of microbial resources.

Contribute to sustainable banana and cacao production by developing disease management systems

The Philippines is a major producer of bananas for export, and is also focusing on cacao production. By preventing diseases in these crops, which are both considered important crops throughout the world, and by achieving sustainable production, we aim to prevent economic losses stemming from decreased crop yields. In addition, we aim to help reduce environmental pollution and damage to the health of the local population resulting from improper application of agricultural chemicals.



Research Institutions in Philippines	Central Luzon State University (CLSU)
Research Institutions in Japan	Tamagawa University / Tokyo University of Agriculture and Technology
Research Period	5 Years

44 = Restoration of Pastureland by Effective Usage of Wild Forage Plants based on Traditional Knowledge of Nomadic Mongolians =

Boost the sustainability of Mongolian livestock farming using traditional knowledge of nomadic Mongolians

Adoption Fiscal Year FY 2019

Principal Investigator
Project Researcher
ASAMI Tadao
Graduate School of Agricultural and Life Sciences, The University of Tokyo

Principal Investigator
Prof. Javzan BATKHUU
National University of Mongolia, School of Engineering and Applied Science

Using traditional knowledge of nomadic Mongolians to maintain the health of livestock and restore Mongolia's degraded grasslands

This project gathers the rich knowledge and oral traditions of nomadic Mongolians regarding Mongolian grassland flora's effectiveness in restoring livestock health and degraded grasslands, selects useful grassland flora, and scientifically demonstrates their usefulness by investigating the chemical compounds and new genes that give them their restorative effectiveness. It also preserves grasslands and livestock health using grassland flora that grows well and is effective in maintaining good health by 'diagnosing' exhausted Mongolian grasslands and 'treating' them by establishing and deploying methods of cultivation for the selected flora.

Improving livestock farming productivity through more extensive use of pasture that is resistant to climate change and maintains good health

This project will develop the pastoral livestock farming industry through restoration of degraded Mongolian grasslands that have been improved through the scientific use of traditional knowledge of nomadic Mongolians and the spread of grassland flora that improves the productivity of grasslands degraded by overgrazing and contributes to livestock health. The application of this methodology will contribute to the revitalization of nomadic pastoral industries facing similar issues around the world.

Research Institutions in Mongolia	National University of Mongolia / Mongolian University of Life Sciences (Research Institute of Animal Husbandry / Institute of Veterinary Medicine (IVM) / Center for Ecosystem Studies (CES)) / Ministry of Food, Agriculture and Light Industry / SHINE ANGIRT Co., Ltd / MONOS Group Company
Research Institutions in Japan	The University of Tokyo / Kyoto University / Tohoku Medical and Pharmaceutical University / National Agriculture and Food Research Organization
Research Period	5 Years

45 = Strengthening of Resilience in Arid Agro-Ecosystems Vulnerable to Climate Change, Through Research on Plant Resources and Technological Applications =

Address climate change with quinoa, a highly nutritious crop that withstands harsh environments

Adoption Fiscal Year FY 2019

Principal Investigator
Dr. FUJITA Yasunari
Program Director, Food Program, Japan International Research Center for Agricultural Sciences (JIRCAS)

Principal Investigator
Prof. Giovanna Rocío Almanza Vega
Chemical Research Institute, Universidad Mayor de San Andrés

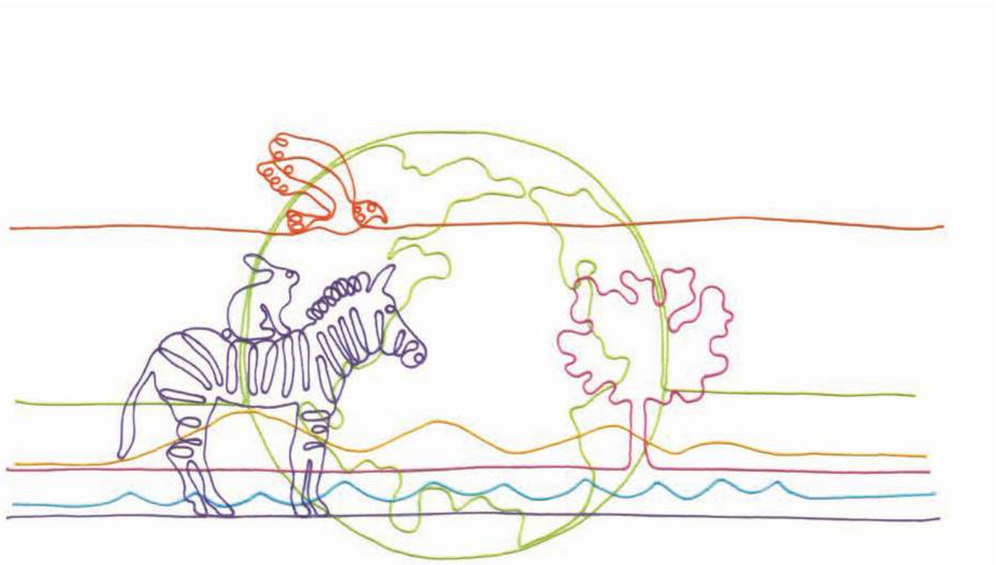
Developing and disseminating sustainable quinoa production technology to cope with climate change

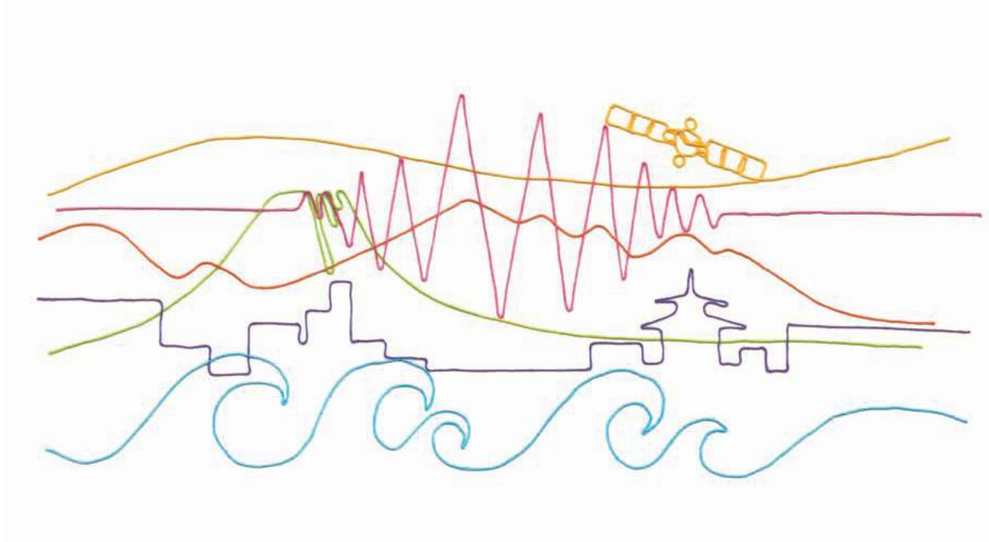
Quinoa is highly nutritious, and it is the only crop that can be cultivated in the highlands of Bolivia that lie at an elevation of approximately 4,000 meters, an extremely unfavorable environment with saline soil, droughts, and frost. However, quinoa production is currently at risk due to issues such as soil erosion caused by frequent extreme weather and the expansion of farmlands. This project develops and introduces sustainable quinoa production technology through the establishment of genetic resources for quinoa, development of new breeding lines with enhanced resilience, management of fallow land, and coordinated crop-livestock production.

Contributing to global food security with a superfood native to the Andes

This project will contribute to stable food production and improved national income in Bolivia through the development and spread of sustainable quinoa production technology. Global food security is expected to be enhanced through the application of technology developed in this extremely adverse environment to other arid regions throughout the world at risk of desertification, as well as to a wide variety of farming environments.

Research Institutions in Bolivia	Universidad Mayor de San Andrés (UMSA) / Fundación PROINPA
Research Institutions in Japan	Japan International Research Center for Agricultural Sciences (JIRCAS) / Kyoto University / Tokyo University of Agriculture and Technology / Obihiro University of Agriculture and Veterinary Medicine
Research Period	5 Years





SATREPS 2025

Disaster Prevention and Mitigation

46 = Development of End-to-End Earthquake Early Warning and Response System =

Save lives with earlier earthquake warnings!

Adoption Fiscal Year FY 2024

Principal Investigator
Researcher INOUE Hiroshi

Disaster Prevention Research Institute, Kyoto University

Principal Investigator
Researcher Andi Eka Sakya

Research Organization for Earth Science and Maritime, National Research and Innovation Agency (BRIN)

Establishment of an integrated system for real-time ground motion prediction, transmission and control, and response

Most casualties resulting from earthquakes around the world are due to the collapse of structurally weak houses. Focused on the western Java region, including Jakarta, the capital of Indonesia, one of the world's most earthquake-prone countries, this project aims to develop an integrated system of high-density seismic network, reliable prediction of earthquake motion, instantaneous transmission of warnings and machine control for railroads, factories, etc., and the emergency evacuation guidelines based on the seismic response of buildings, followed by its dissemination and implementation through hands-on learning. The system will be developed as an end-to-end Earthquake Early Warning and Response System, and its effectiveness in mitigating disasters will also be evaluated.

Low-cost seismic intensity meter being developed by the Indonesian team

Tour of a mosque to be utilized for the transmission of warnings

The Earthquake Early Warning system will contribute to earthquake disaster mitigation not only in Indonesia but all around the world

Earthquake Early Warning systems are effective for disaster mitigation in developing countries where buildings are weak. In the future, the project aims to expand the use of the developed system to other developing countries beyond Indonesia, to reduce the impact of earthquake disasters around the world. The accumulation of operational experience will be accelerated by offering support to other countries, and contribute to the improvement of Japan's Earthquake Early Warning and response systems.

Inspection of a masonry house construction site

Research Institutions in Indonesia	National Research and Innovation Agency (BRIN) / Meteorological, Climatological and Geophysical Agency (BMKG) / Bandung Institute of Technology and 13 universities, National Disaster Management Authority (BNPB) / Regional Disaster Management Agency (BPBD)
Research Institutions in Japan	Kyoto University / The University of Tokyo / Realtime Earthquake & Disaster Information Consortium
Research Period	5 Years

47 = Development of Integrated Sediment and Environmental Management towards Sustainable Conservation, Disaster Risk Reduction, and Livelihood Improvements in Coastal Areas =

Achieving disaster risk reduction and livelihood improvement through sustainable mitigation of cross-border coastal erosion

Adoption Fiscal Year FY 2024

Principal Investigator
Prof. TAJIMA Yoshimitsu

Department of Civil Engineering, Graduate School of Engineering, The University of Tokyo

Principal Investigator
Prof. Denis Worlanyo Aheto

Director for Centre for Coastal Management and the Africa Centre of Excellence in Coastal Resilience, University of Cape Coast

Establishment of a system for evaluating and planning measures to achieve a positive spiral of coastal conservation and disaster risk reduction

The project aims to promote integrated sediment and environmental management measures that are both sustainable and international in scope to mitigate the coastal erosion and inundation disasters, environmental degradation, and livelihood deprivation that are growing increasingly problematic in West Africa, and to achieve a virtuous cycle of disaster risk reduction, environmental conservation, and livelihood improvement. To realize these goals, we will monitor and compile a database over sedimentary budgets, coastal deformation, coastal environment, livelihoods, etc., develop analytical tools to predict and evaluate the long-term effects of each measure, including the influence of climate change, and establish a system enabling the sustainable planning and implementation of specific measures.

House collapse and outflow of trash caused by coastal erosion (Densu Delta)

Promotion of coastal erosion countermeasures based on long-term, integrated benefit assessments

The project collects and accumulates the data on sedimentary budgets, coastal deformation, disasters, coastal environment, and livelihoods, and develops a system to study various measures which create a long-term positive spiral of these improvements. By evaluating the integrated and long-term benefits of countermeasure effects, the project will contribute to the promotion of measures against chronic coastal erosion that is progressing across national boarders along the coast of West Africa.

Exchange of opinions in a village forced to relocate due to coastal erosion (Anlo beach)

Research Institutions in Ghana	Centre for Coastal Management and the Africa Centre of Excellence in Coastal Resilience, University of Cape Coast
Research Institutions in Japan	The University of Tokyo / International Centre for Water Hazard and Risk Management / Tokyo University of Marine Science and Technology / Yokohama National University / Mie University / Pacific Consultants, Co., Ltd.
Research Period	5 Years

48 = Disaster Risk Reduction of Widespread Volcanic Hazards in Southwest Pacific Countries =

Volcanic island nations working together to reduce the risk of eruption and tsunami disasters!

Adoption Fiscal Year FY 2023

Principal Investigator
Prof. ICHIHARA Mie

Earthquake Research Institute, The University of Tokyo

Principal Investigator
Mr. Taaniela Kula

CEO, Ministry of Lands and Natural Resources

Principal Investigator
Mr. David Gibson

Director General, Ministry of Climate Change Adaptation, Meteorology and Geo-Hazards, Energy, Environment and National Disaster Management

Principal Investigator
Mr. Paula N. B. CIRIKIYASAWA

Permanent Secretary, Ministry of Lands and Mineral Resources

Volcanic geological survey on Tanna Island (Vanuatu). A local leader is being briefed on the survey. The ash-emitting Mt. Yasur volcano can be seen in the background.

Mitigating disasters through knowledge of past and present volcanic activity in the southwest Pacific Ocean

The January 2022 eruption of a submarine volcano in the Kingdom of Tonga and the following tsunami had a global impact, and highlighted the importance of monitoring, forecasting, and countermeasures for volcanic activity in the ocean areas around islands. This project aims to elucidate the history and characteristics of volcanic eruptions and tsunamis in the southwest Pacific Ocean, and to develop techniques for understanding current volcanic activity. Tonga, Fiji, and Vanuatu will collaborate to utilize these technologies to mitigate disasters. The island countries work together, discussing and building improvement measures on the problems of human resource shortages and disaster countermeasures.

The establishment of a trilateral collaboration platform to mitigate the risk of wide-area volcanic eruptions and tsunami disasters

New knowledge and observation technologies will be created concerning volcanic eruptions in island and sea areas where observation data and understanding are limited. The outputs will be applicable to volcanoes in island and sea areas in Japan and the world. In addition, the issue of limited human resources in island countries will be overcome through regional collaboration, and a sustainable human resource development system will be built.

A gigantic rock believed to be a Tongan tsunami boulder. Some people believe that the tsunami was caused by the eruption of the Kuwae Volcano in Vanuatu. This is one of the research subjects of this project.

The international kick-off conference held in Fiji (Nadi City). In addition to Japan and the partner countries, international organizations such as UNESCO and experts from New Zealand and the U.S. participated on site or online.

Research Institutions in Tonga, Vanuatu, Fiji	Ministry of Lands and Natural Resources / Ministry of Climate Change Adaptation, Meteorology and Geo-Hazards, Energy, Environment and National Disaster Management / Ministry of Lands and Mineral Resources
Research Institutions in Japan	The University of Tokyo, Tohoku University, Mount Fuji Research Institute Yamanashi Prefectural Government
Research Period	5 Years

49 = Compound Disaster Risk Reduction associated with Large Earthquakes and Tsunamis =

Protecting international port cities from compound disasters with domino-style chains of destruction!

Adoption Fiscal Year FY 2023

Principal Investigator
Associate Prof. NAKANO Genta

Disaster Prevention Research Institute, Kyoto University

Principal Investigator
Prof. Miguel Ángel Hernández Martínez

Faculty of Agricultural Science, University of El Salvador

Principal Investigator
Associate Prof. Josué Tago Pacheco

School of Engineering, National Autonomous University of Mexico

Survey at the Port of Acajutla

Science, engineering, and the social sciences come together to reduce the risk of compound disasters in international port cities caused by earthquakes and tsunamis

When international port cities are hit by earthquakes and tsunamis, in addition to direct damage, there are compounding effects such as tsunami fires, hazardous material spills, and economic stagnation from the disruption to logistics networks. In this research project, earthquake scenarios are developed based on seafloor, land-based, and geodetic observations, and compound disaster risks are evaluated based on earthquake and tsunami simulations. Infrastructural countermeasures, risk management and evacuation strategies are then proposed with the aim of implementing these in society through communication with relevant organizations and residents.

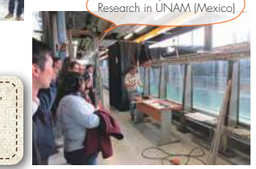
Survey of an area with high tsunami risk

The development of risk assessment methods and proposal of risk reduction measures

The project will develop a comprehensive compound disaster risk assessment methodology together with counterpart researchers, propose risk reduction measures, and promote investment in disaster risk reduction by national and local governments as well as the private sector through communication efforts. In the long run, the developed methodology will contribute to the disaster risk reduction of international ports in Japan and around the world.

Kick-off meeting in El Salvador

Laboratory for Tsunami Research in UNAM (Mexico)



Research Institutions in El Salvador	University of El Salvador / Centroamerican University José Simeón Cañas / General Direction of Hazard Observation, Ministry of Environment and Natural Resources / General Direction of Civil Protection, Ministry of Internal Affaires
Research Institutions in Mexico	National Autonomous University of Mexico / National Disaster Prevention Center
Research Institutions in Japan	Kyoto University / University of Tokyo / Kobe University
Research Period	5 Years

50 = Establishment of a Research and Education Complex for Developing Disaster-resilient Societies - MARTEST =

Use disaster mitigation science to reduce the damage from massive active-fault earthquakes!

Adoption Fiscal Year FY 2022


The study region

Building a resilient society through earthquake-resistance technology and earthquake risk assessments

Türkiye has many vulnerable structures, and has experienced severe earthquake damage. To mitigate this earthquake damage, in this project we are conducting research on earthquake-resistance technology, developing an earthquake and tsunami scenario platform, conducting an earthquake risk assessment for the anticipated North Anatolian Fault earthquake (Marmara earthquake) through observational and measurement studies, and promoting earthquake-resistance measures. We are also working to encourage disaster mitigation education using simulation studies and the visualization of disaster images by means of information technology, and enabling the adoption of procedures for proposing recovery plans based on these disaster images.

Preparing for the anticipated Marmara earthquake through disaster mitigation science

Through AFAD (the Turkish disaster management agency), we are contributing to the creation of an earthquake-resilient society by promoting earthquake-resistance technology and training earthquake engineers. This is raising awareness of the risk of the anticipated Marmara earthquake and encouraging the formulation of reconstruction plans by the government. These research outcomes will be extended to Japan, Türkiye, and neighboring countries, helping to build resilient societies.


Sea of Marmara


Illustration of MARTEST (Marmara Earthquake Engineering Test Center)


Group photograph at a meeting in preparation for holding the JCC at Kagawa University

Principal Investigator
Designated Prof.
KANEDA Yoshiyuki

Designated Prof. / Vice Director of IECMS Institute of Education, Research and Regional Cooperation for Crisis Management Shikoku (IECMS), Kagawa University


Republic of Türkiye

Principal Investigator
Prof. Bülent Akbas

Gebze Technical University / Director MARTEST center.

Research Institutions in Türkiye	Gebze Technical University / Middle East Technical University / Hacettepe University / Yildiz University / KOERI, Bogazici University / Istanbul University-Cerrahpaşa / AFAD (Ministry of Interior Disaster and Emergency Management Presidency / Türkiye Earthquake Foundation / Turkish Red Crescent (TURKKIZILAY).
Research Institutions in Japan	Kagawa University / Nagoya University / The University of Tokyo / Chuo University / University of Hyogo
Research Period	5 Years

52 = Numerical Weather Prediction and Warning Communication System for Densely Populated and Vulnerable Cities =

Protecting people against disaster by predicting intense rainstorms and flooding!

Adoption Fiscal Year FY 2021

Develop a total package to protect cities against flooding caused by intense rainstorms

Natural disasters caused by intense rainstorms and flooding are related to climate change, and their risk is increasing on a global scale. Regions where the infrastructure and buildings may not be built to global standards and densely populated cities are particularly vulnerable. In this study, we are developing a total monitoring, prediction, warning, utilization, and behavioral package for natural disasters caused by intense rainstorms and flooding, and putting it to use in the major conurbations of Buenos Aires and Córdoba. We are organizing a meteorological and hydrological observations network and computers, developing a prediction and warning system, and conducting disaster mitigation education for the general public while training specialist staff.


Disaster mitigation education at a school close to the San Roque dam, near Córdoba.


River flowing through the city of Quilmes near Buenos Aires

Transmitting and utilizing warnings on intense rainstorms and flooding leads to disaster mitigation behavior

The reduction in damage in the participating areas will become clear, and the scheme will be extended throughout Argentina. Its success in Argentina will lay the foundations for, and mark the beginning of, disaster mitigation for intense rainfall and flooding that is globally applicable. Going forward, by developing this package on a global scale while continuing to increase its sophistication, we will contribute to tackling this issue worldwide.

Principal Investigator
Team Director
MIYOSHI Takemasa

Prediction Science Research Team, Division of Applied Mathematical Science, RIKEN Center for Interdisciplinary Theoretical and Mathematical Sciences


Argentine Republic

Principal Investigator
Dr. Yanina García Skabar

Researcher, National Meteorological Service


Seminar at the University of Buenos Aires


Visiting the Argentine National Meteorological Service

Research Institutions in Argentine	National Meteorological Service / National Hydrological Service / University of Buenos Aires / National North Eastern University / National University of Cordoba / Risk Management and Civil Protection – Córdoba Province / Risk Management and Civil Protection – Buenos Aires Province
Research Institutions in Japan	RIKEN / Osaka University / International Centre for Water Hazard and Risk Management (ICHARM), Public Works Research Institute (PWRI)
Research Period	5 Years

51 = Real-Time Lightning 3D Imaging and Forecasting Project for Sustainable and Reliable Supply of Energy and Storm Disaster Early Warning =

Mitigating the damage caused by 200 lightning days a year by nowcasting with advanced observation network

Adoption Fiscal Year FY 2022

3D imaging of the electric charge distribution in thunderclouds in real time

We are conducting lightning observations on various frequencies of electromagnetic waves, and establishing an observation network to image whole lightning channel development in detail from the micro-discharge in clouds that are precursors of lightning discharge start, how they develop, and where they terminate. We can estimate the locations and the amount of neutralizing charge inside thunderclouds. We are verifying the results of these estimations and improving their accuracy by using the lightning return-stroke current waveforms measured from lightning strikes on tall buildings and in rocket-triggered lightning experiments, to enable the nowcasting of lightning activity.

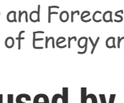

Conducting preliminary measurements of the electromagnetic wave environment to choose equipment installation sites


Successful rocket triggered lightning

Use sophisticated lightning data to enable a stable electric power supply and an early warning system for severe weather disaster

Use highly accurate lightning observations and short-term prediction data to switch to a backup power source in places where an outage or voltage fluctuations cannot be permitted, or to maintain power and communications equipment. Investigate the association between lightning activity and rainfall, leading to early warning of heavy precipitation that may cause flood and other damage. Extend these results from the Malacca Strait coastline to neighboring regions.


Training on rocket triggered lightning technique in Japan



Principal Investigator
Prof.MORIMOTO Takeshi

Faculty of Science and Engineering, Kindai University


Malaysia

Principal Investigator
Manager
Mohd Riduan Ahmed

Centre of Technology for Disaster Risk Reduction, Universiti Teknikal Malaysia Melaka

Research Institutions in Malaysia	Universiti Teknikal Malaysia Melaka / Universiti Tenaga Nasional
Research Institutions in Japan	Kindai University / Chubu University / OTOWA ELECTRIC CO., LTD. / The University of Electro-Communications / Gifu University / University of Fukui
Research Period	5 Years

53 = Building Sustainable System for Resilience and Innovation in Coastal Community =

Protecting Indonesia's coastline with green infrastructure

Adoption Fiscal Year FY 2021

Scientific evidence-based improvements to the defensive capabilities of coastal areas and their social implementation

The Indonesian coastline is subject to severe damage due to coastal erosion and submersion by waves and tsunamis, and this hampers the development of coastal areas. We are organizing coastal monitoring networks using the latest technology, carrying out simulations, and transferring technologies for coastal preservation utilizing sandy beaches and mangrove forests, in order to conduct scientific evidence-based improvements to the defensive capabilities of coastal areas and create approaches for their social implementation. Our aim is to create coastal communities that can achieve a balance between disaster prevention, environmental preservation, and economic development.


Kuta beach on the island of Bali.


Anti-erosion measures on Bali

Disaster prevention and mitigation using green infrastructure

We will conduct standardization of the optimum natural environment-oriented coastal defense technology, combining monitoring for coastal disaster mitigation with green-gray infrastructure taking account of improvements in monitoring and modeling technology and changes over time. We will establish the technology thus developed as Indonesia's standard technology, with the aim of extending it to other areas and encouraging its adoption in Southeast Asia and Pacific island nations.


Damage from the Sulawesi earthquake and tsunami in 2018


Mangrove forest (Iriomote-jima)

Principal Investigator
Prof. MORI Nobuhito

Disaster Prevention Research Institute, Kyoto University


Republic of Indonesia

Principal Investigator
Dr. Mohammad FARID

Head of Center for Coastal and Marine Development, Bandung Institute of Technology

Research Institutions in Indonesia	Bandung Institute of Technology / National Disaster Management Agency / Gadjah Mada University / University of Indonesia / The Ministry of Public Works and Housing / Indonesian Agency for Meteorology, Climatology and Geophysics / National Research and Innovation Agency
Research Institutions in Japan	Kyoto University / Tohoku University / Port and Airport Research Institute /Chuo University
Research Period	5 Years

54 = Development of Integrated Expert System for Estimation and Observation of Damage Level of Infrastructure in Lima Metropolitan Area =

Use sensors to create a system that immediately assesses damages from earthquakes and tsunamis!

Adoption Fiscal Year FY 2020

Principal Investigator
Prof. KUSUNOKI Koichi

Earthquake Research Institute, The University of Tokyo

Principal Investigator
Prof. Carlos Zavala

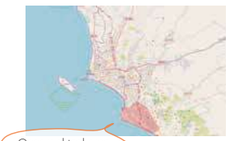
Japan Peru Center for Earthquake Engineering Research and Disaster Mitigation (CISMID), National University of Engineering

Speed up decision-making related to earthquake disaster response in Lima

Structures Laboratory of the Japan-Peru Center for Earthquake Engineering Research and Disaster Mitigation (CISMID)

Earthquake and tsunami disasters occur suddenly, and their effects are widespread. In order to respond effectively to a disaster, it is important to get an overall picture of the damage as soon as possible. However, people usually gather information about the status of earthquakes or tsunamis, and about damage to buildings and infrastructure, etc. by checking each aspect separately, mainly using visual inspection and manual processes. By making full use of modern sensor technology, we intend to develop a system that can grasp the whole picture of the scope of the damage as quickly as possible after the occurrence of a disaster and rapidly integrate the findings into a geographical information system with display capabilities.

Immediately grasping the full extent of damage caused by an earthquake or tsunami makes it possible to take appropriate measures



Geographical area subject to study

Development of a disaster information integration system—capable of quickly grasping information about the occurrence of earthquake and tsunami disasters and about ensuing damage to buildings and infrastructure, integrating that information, and displaying it in real time to people in charge of implementing disaster countermeasures—could contribute to a significant reduction in the number of people harmed or killed because they failed to flee in time, and would likely be adopted in earthquake-prone countries around the world.

Conferencing online enables the project to continue despite the COVID-19 pandemic

Ceremony welcoming Japanese Ambassador at CISMID

Research Institutions in Peru	National University of Engineering / Geophysical Institute of Peru / Direction of Hydrography and Navigation / Ministry of Housing, Construction and Sanitation / Service of Water and Sewerage of Lima / Ministry of Transportation and Communication / Aerospatial National Comission / National Center of Estimation, Prevention and Disaster Risk Reduction / National Institute of Civil Defense / Ministry of Education / Ministry of Health / Lima Metropolitan City Office
Research Institutions in Japan	The University of Tokyo / The National Institute of Advanced Industrial Science and Technology / Tohoku University / Chiba University / Institute of Science Tokyo / Nagoya University
Research Period	5 Years

55 = The Project for Technology Development on Life Time Management of Road and Bridge for Strengthening Resilience in Thailand =

Harmonious balance between people and technology to ensure the safety of road networks

Adoption Fiscal Year FY 2020

Principal Investigator
Prof. SATO Yasuhiko

Department of Civil and Environmental Engineering, School of Creative Science and Engineering, Waseda University

Principal Investigator
Prof. WANCHAI Yodsudjai

Vice Dean for Research, Faculty of Engineering, Kasetsart University

Develop technologies and human resources that can make roads and bridges last a long time

This project aims to develop technologies for properly assessing the effects of salt damage, scouring, and heavy loads on road structures, and technologies that provide strong protection for bridges against salt damage, scouring, and heavy loads. Additionally, we will establish an educational curriculum for cultivating highly capable road management engineers who have a solid command of said technologies, and we will invest a good deal of energy in developing human resources. Taking into account harmony between technology and people, this research will eventually result in an infrastructure maintenance method that is effective for the road structures of Thailand.

Flood damage

Overloaded truck

Help solve the worldwide problem of aging road infrastructure!

Bridge pier deterioration due to salt exposure

The technology developed through this project will extend the life of roads and bridges that make up the Asian Highway Network,which in turn will contribute to improving the safety and reliability of the ASEAN road network. Moreover, we are confident that the results of this research will contribute greatly to streamlining maintenance methods for decrepit infrastructure in Japan.

Practicum in bridge surveying led by a bridge engineer, before starting SATREPS project

Group that conducted survey of bridges prior to starting SATREPS project

Research Institutions in Thailand	Kasetsart University / Department of Highway / Chulalongkorn University
Research Institutions in Japan	Waseda University / Hokkaido University / Kansai University / Nihon University / NIPPON STEEL Chemical & Material Co., Ltd. / KAJIMAROAD CO., LTD. / KYOWA ELECTRONIC INSTRUMENTS CO., LTD. / KSK CO., LTD. / HIKARI CO., LTD. / Hanwa Co., Ltd.
Research Period	5 Years

56 = Development of a Hybrid Water-Related Disaster Risk Assessment Technology for Sustainable Local Economic Development Policy under Climate Change =

Predict sustainable local economic development scenarios based on interdisciplinary assessment of water-related disaster risk

Adoption Fiscal Year FY 2019

Principal Investigator
Prof. OHARA Miho

Center for Integrated Disaster Information Research, Interfaculty Initiative in Information Studies, The University of Tokyo

Principal Investigator
Prof. Fernando C. Sanchez, Jr

University of the Philippines Los Baños (UPLB)

Hybrid water-related disaster risk assessment combining climatic, hydrological, agricultural, and economic models

It is feared that frequent water-related disasters in the Republic of the Philippines brought on by future climate change will hinder sustainable development of regional cities and exacerbate overconcentration in Metro Manila. This project creates hybrid water-related disaster risk assessment models that combine future climate change, hydrological, agricultural, and economic models and conducts an objective assessment of the effectiveness of investing in disaster prevention measures in the Pampanga River basin and the Pasig-Marikina River and Laguna Lake basins in the environs of Metro Manila.

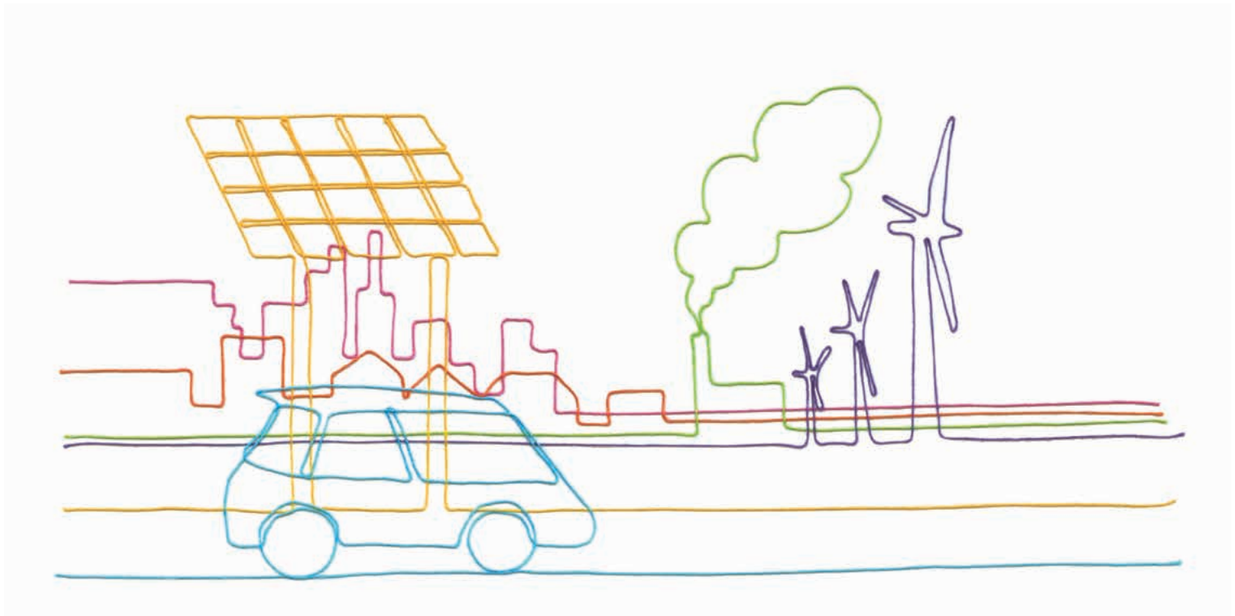
Field survey on the Pasig-Marikina River system

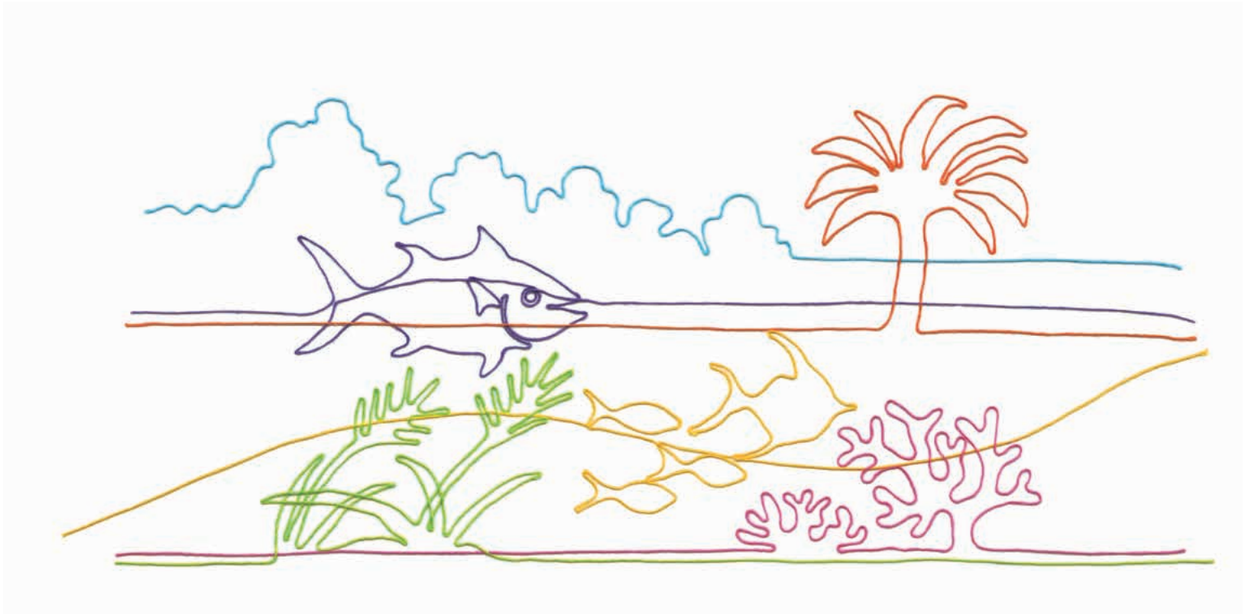
Contributing to sustainable economic development through policy recommendations based on water-related disaster risk assessment

Utilizing hybrid water-related disaster risk assessment models for these river basins, this project will predict future economic development scenarios in line with disaster prevention measures formulated in advance and present policy recommendations for enhanced resilience to water-related disasters caused by climate change and sustainable economic development through balanced national development.

Farmland survey in the Pampanga River basin

Research Institutions in Philippines	University of the Philippines Los Baños (UPLB) / University of the Philippines Diliman (UPD) / University of the Philippines Mindanao (UPMin)
Research Institutions in Japan	The University of Tokyo / International Centre for Water Hazard and Risk Management (ICHARM), Public Works Research Institute (PWRI) / Tohoku University / Kyoto University / The University of Shiga Prefecture / Nagoya University
Research Period	5 Years

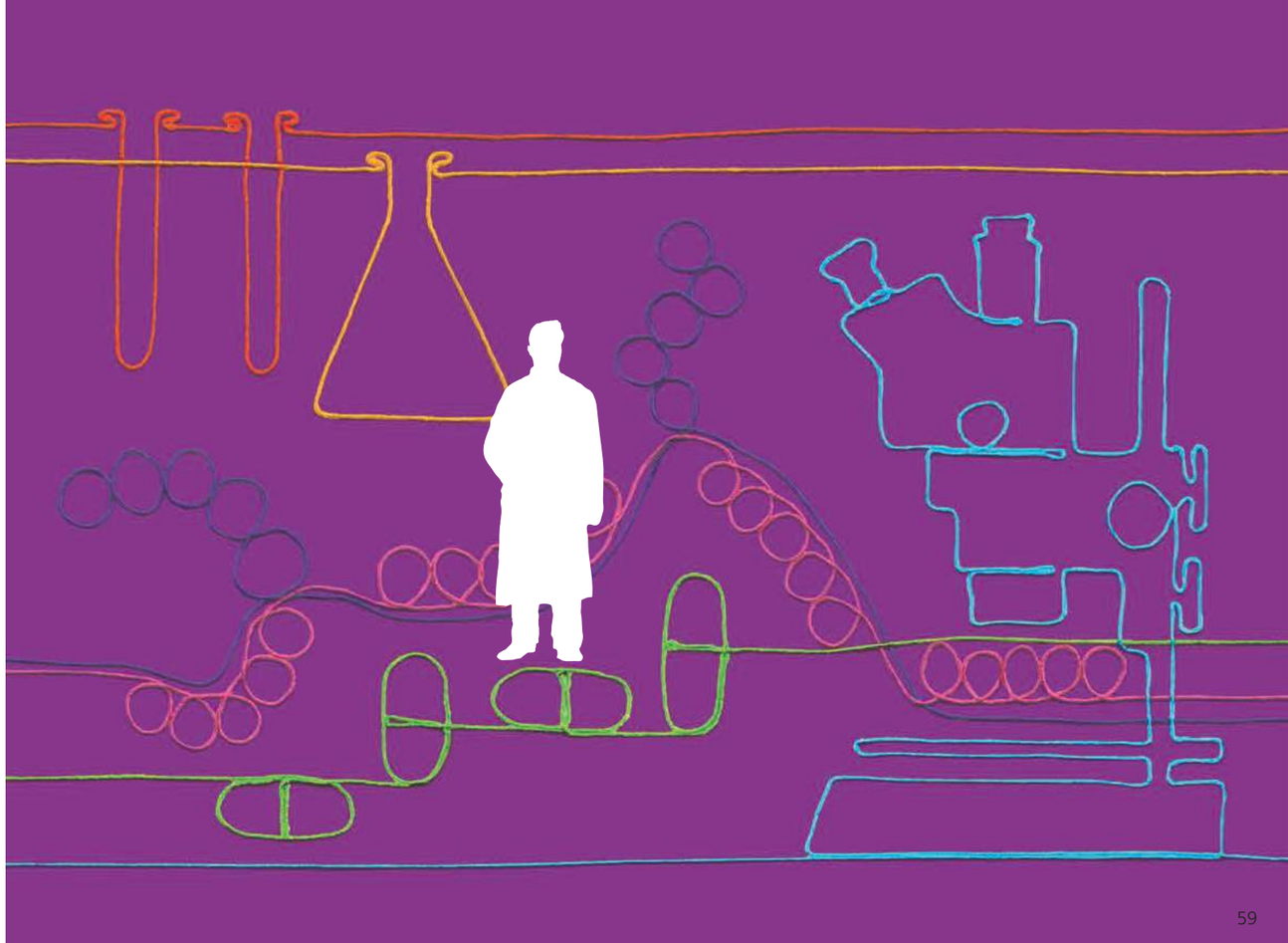




SATREPS 2025

Infectious Diseases Control

SATREPS projects in the field of Infectious Diseases Control have been transferred to AMED - the Japan Agency for Medical Research and Development.
(The transfer took place on April 1, 2015. Projects that finished before that date were not transferred.)



57 = The project for assessing genetic diversity of Vibrio cholerae using cloud computing and developing potential therapeutics against cholera =

Controlling the spread of cholera by 2030!

Adoption Fiscal Year FY 2024

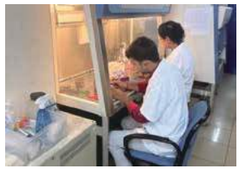
Principal Investigator
Director IIDA Tetsuya

Research Institute for Microbial Diseases, The University of Osaka

Principal Investigator
Director Santasabuj Das

ICMR - National Institute for Research in Bacterial Infections

Sequencing of the cholera genome and research and development of therapies for Vibrio cholerae in India



Cholera is an infectious diarrheal disease with severe symptoms, the spread of which the WHO aims to control by 2030. The Bengal region of India is known as a major endemic area of cholera, and the containment of cholera in this region will prevent future global epidemics. In this research project, genome sequencing will be applied to trace cholera strains prevalent in India. Information on virulence factors and intestinal colonization factors will be obtained from the collected information on epidemic strains of cholera, and will lead to the development of drugs with novel mechanisms of action.

A water pumping station in an urban area of Kolkata (the site of the field survey)

Tracking of cholera bacteria using genome data and contributions to cholera control

An automated genotyping analysis system for Vibrio cholerae that utilizes cloud computing will be developed, and the technology will be provided to partner institutions to track cholera epidemics. The latest cholera genome data collected through the project will serve as a basis for understanding the mechanisms behind drug resistance as well as for drug development, thereby contributing to the control of cholera.

Cultured Vibrio cholerae

The National Institute for Research in Bacterial Infections (Kolkata, India)

Research Institutions in India	ICMR - National Institute for Research in Bacterial Infections
Research Institutions in Japan	The University of Osaka / Japan Institute for Health Security / Nagasaki University
Research Period	5 Years

59 = Research and Development Project for Building Sustainable Framework towards the Elimination of Schistosomiasis =

Visualizing and cutting off the source of infection through the power of the community and the art of science!

Adoption Fiscal Year FY 2023

Principal Investigator
Prof. TSUJI Naotoshi

Kitasato University School of Medicine, The Kitasato Institute

Principal Investigator
Director and Prof.
Dorothy Yeboah-Manu

Noguchi Memorial Institute for Medical Research, University of Ghana

Implementing a sustainable model of schistosomiasis control created through collaboration between the community and science

A scene from the daily life of local residents engaged in fishing in the Volta River basin, where schistosomiasis is endemic

Schistosomiasis is a parasitic disease spread via freshwater mollusks, causing serious health problems in the areas of sub-Saharan Africa where it is endemic. This project will promote the implementation of a model for controlling its spread by establishing both a community-based monitoring system to visualize the sources of infection and assess risks, and a drug efficacy evaluation system targeting local strains. Through a multifaceted approach that integrates science and local capabilities, the project will conduct practical research with a view to establishing a sustainable control system and achieving its international deployment.

Preparation of blood and urine samples collected from children infected with schistosomes

Global deployment and application of a Ghanaian model for controlling the spread of schistosomiasis

By visualizing the status of schistosomiasis infection and implementing drug efficacy evaluations locally, a sustainable, community-driven control system can be established. Following development in Ghana, a successful model will be applicable to other neglected tropical diseases (NTDs) and health issues, and is expected to be deployed internationally and applied to endemic areas, beginning with Africa.

Group photo of the Japan-Ghana joint team participating in a preliminary survey of an area where schistosomiasis is endemic

Research Institutions in Ghana	Noguchi Memorial Institute for Medical Research, University of Ghana / Ministry of Health / Ghana Health Service / Ministry of Education / Ghana Education Service
Research Institutions in Japan	The Kitasato Institute, Kitasato University
Research Period	5 Years

58 = Project for the Sustainable Control of Zoonotic Malaria through an Integrated Approach =

Taking the lead against the threat of forest-dwelling pathogens! Establish a containment strategy against zoonotic malaria!

Adoption Fiscal Year FY 2024

Principal Investigator
Prof. KANEKO Osamu

Institute of Tropical Medicine, Nagasaki University

Principal Investigator
Prof. Kamruddin Ahmed

Borneo Medical and Health Research Centre, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah

Developing an integrated strategy for zoonotic malaria control

Field survey conducted in a village endemic for zoonotic malaria

Human infections with zoonotic malaria are increasing, particularly in Malaysia, raising concerns about the potential for global spread if human-to-human transmission emerges. This project aims to develop technologies and strategies to substantially reduce the number of cases in Sabah, Malaysia. Specifically, we will develop novel rapid diagnostic tests, automated vector larval control technologies, identify high-risk areas, time periods, and behaviors, and implement educational programs. These components will be integrated into a One Health strategy.

Increased opportunities for monkey-human contact due to the expansion of palm oil plantations and other factors.

Reducing Malaysia's public health and economic burden and preventing human-to-human transmission

The technologies and programs developed through this project are expected to reduce the public health burden and economic losses in Malaysia, while also lowering the risk of human-to-human transmission. Within ten years, the goal is to expand these efforts nationwide in Malaysia and to neighboring countries, providing sustained and significant contributions to the control of zoonotic malaria.

Drone used for vector mosquito control

Research Institutions in Malaysia	Universiti Malaysia Sabah
Research Institutions in Japan	Nagasaki University / Ehime University / Tokyo Women's Medical University
Research Period	5 Years

60 = The project for co-designing neglected zoonosis intervention through One Health, education, and public-private partnership =

Reducing uncontrolled zoonoses through a combination of One Health, education, and public-private partnerships!

Adoption Fiscal Year FY 2023

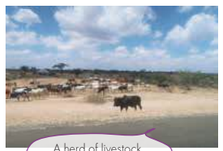
Principal Investigator
Prof. MAKITA Kohei

School of Veterinary Medicine, Rakuno Gakuen University

Principal Investigator
Dr. MATHEW Coletha

Senior Lecturer, School of Veterinary Medicine and Biomedical Sciences, Sokoine University of Agriculture

Problem solving with local residents based on models of socioeconomic and infectious disease transmission systems



A herd of livestock on the move

Brucellosis and zoonotic tuberculosis are widespread among humans and livestock in Tanzania. This project will promote data sharing and improved understanding of both diseases in the health and veterinary sectors. With the participation of stakeholders, system dynamics models of socioeconomic and infectious disease transmission systems will be used to find the conditions for successful control of infectious diseases, including a gender perspective. Based on the results, different sectors will collaborate to educate the public on infectious diseases and plan and implement public-private partnerships with residents to control infectious diseases.

Local government doctor and veterinarian (center) surrounded by project members.

By the collaborative infectious diseases control between health/veterinary, and public-private sectors, high-risk behaviors will be reduced

Discussing infectious disease control with the Maasai

Knowledge of brucellosis and zoonotic tuberculosis and their prevention will be improved among herders and residents. The number of farmers implementing infectious disease control measures in livestock will increase, while high-risk behavior among people will be reduced. One Health, education, and public-private partnerships based on systems modeling for infectious disease control are expected to become widely adopted around the globe.

Research Institutions in Tanzania	Sokoine University of Agriculture / Tanzania National Institute of Medical Research / Muhimbili University of Health and Allied Sciences
Research Institutions in Japan	Yamaguchi University / Obihiro University of Agriculture and Veterinary Medicine / University of Tokyo / Rakuno Gakuen University
Research Period	5 Years

61 = Project for malaria and neglected parasitic diseases control and elimination using advanced research technique, communication tools and eco-health education =

Use the LAMP method to detect malaria patients and identify endemic areas from environmental DNA!

Adoption Fiscal Year FY 2022

Principal Investigator
Dr. IWAGAMI Moritoshi

Chief, Department of Tropical Medicine and Malaria, Research Institute, National Center for Global Health and Medicine (NCGM)

Lao People's Democratic Republic

Principal Investigator
Dr. Philippe BUCHY

General Director, Institut Pasteur du Laos (IPL) Ministry of Health

Develop technology for the diagnosis and prevention of parasitic disease, and spread eco-health education

In Laos, the poorest country in southeast Asia, parasitic diseases including malaria, Mekong schistosomiasis, and Thai liver fluke are impediments to both human health and economic development. To decrease the number of patients with these parasitic diseases and promote economic development in the country, we are using the LAMP method and environmental DNA for the accurate identification of patients and endemic areas. We are also using pulse current technology to develop technology to deactivate the Thai liver fluke in the fish on which it is parasitic, and laying the foundations for the practical use of these scientific technologies in society.

Diagnosing malaria by the LAMP method

Environmental DNA survey to detect parasite DNA from the water system

Deactivation of fish parasites by pulse current technology

Help eliminate and suppress malaria, Mekong schistosomiasis, and Thai liver fluke!

If we can prove that the LAMP method will accelerate the elimination of malaria from Laos, this will have a ripple effect on malaria prevention measures in other countries. Identifying at-risk areas by using environmental DNA will contribute to effective control measures and education for infection prevention. Pulse current technology will enable fish to be supplied safely for eating raw, and will also contribute to measures for dealing with parasites in meat for human consumption in future.

A poor Laotian village where eco-health education is needed

Research Institutions in Lao People's	Institut Pasteur du Laos / Center of Malariology, Parasitology and Entomology / Lao Tropical and Public Health Institute / University of Health Sciences / Laos National University / Ministry of Education and Sport
Research Institutions in Japan	Nippon Bunri University / Niigata University / Niigata University of Pharmacy and Medical and Life Sciences / University of the Ryukyus / Kumamoto University / Shinshu University / Nagano College of Nursing / National Center for Global Health and Medicine (NCGM)
Research Period	5 Years

62 = Project for Integrated Research and Development towards Control and Elimination of Schistosomiasis =

Develop essential tools for the control and elimination of schistosomiasis!

Adoption Fiscal Year FY 2022

Principal Investigator
Prof. HAMANO Shinjiro

Vice Dean and Head of the Department of Parasitology, Institute of Tropical Medicine, Nagasaki University

Republic of Kenya

Principal Investigator
Prof. NJENGA Sammy

Lead Scientist, ESACIPAC laboratory, Kenya Medical Research Institute

Create transmission monitoring tools, behavior change communication models, and novel drugs

Schistosomiasis is a parasitic disease that affects 250 million people in 78 countries worldwide. The larvae are released from freshwater snails and enter the mammalian body through the skin, which cause various chronic symptoms. There is no vaccine. The eggs are released into the environment with feces and urine, and contribute to the transmission of the infection. Diagnosis by egg detection is low-sensitive and inadequate for monitoring. The only effective drug is praziquantel, but even this, reportedly, does not work well in some cases. This project aims to overcome these issues.

Collecting the intermediate host (freshwater snails) of *Schistosoma mansoni* (Homa Bay, on the shore of Lake Victoria)

The highly endemic region of *Schistosoma mansoni* infection

Promote transmission monitoring, behavior change communication and drug discovery

A highly sensitive method for monitoring infection transmission in people and water environments alongside behavior change communication models will contribute to a program for controlling and eliminating schistosomiasis and other infections. Discovering new drug lead compounds will accelerate drug discovery research not only for schistosomiasis but also for other types of helmintic infections.

Area where *Schistosoma mansoni* is transmitted

At Maseno University (Kisumu, on the shore of Lake Victoria)

Research Institutions in Kenya	Kenya Medical Research Institute / Maseno University / Ministry of Health
Research Institutions in Japan	Kobe University / Nagasaki University / National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine / Tokyo Women's Medical University
Research Period	5 Years

63 = The project for One Health approach to control of Neglected Tropical Diseases with special attention on sandfly and mosquito borne infections in Türkiye =

Halt the spread of arthropod-borne infectious diseases!

Adoption Fiscal Year FY2021

Principal Investigator
Associate Prof.
SANJOBA Chizu

Laboratory of Molecular Immunology, Graduate School of Agricultural and Life Sciences, The University of Tokyo

Republic of Türkiye

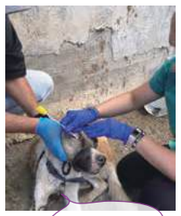
Principal Investigator
Prof. OZBEL Yusuf

Department of Parasitology
Ege University Faculty of Medicine

Formulate guidelines and develop an infection monitoring and warning system

Changes in the biota due to warming and socioeconomic activity are facilitating the spread of infectious diseases carried by arthropods. In Türkiye, in addition to mosquito-borne viral infections, leishmaniasis, which is carried by sandflies, is a threat to human health that is causing economic loss. In this project, our aim is to ascertain the transmission cycle of these infections and formulate guidelines for their control based on scientific findings. We will also build a monitoring and warning system covering the entirety of Türkiye.

Sandfly insecticide resistance experiment



Pathogen detection test in a dog

Help minimize the spread of infection and build a system that can be used worldwide

Establish technology for efficient pathogen detection and contribute to infection control measures. This will help develop technology that will contribute to new infection control measures in Japan as arthropod populations change. The monitoring and warning system and guidelines established in this project will provide a model case that can be adapted for use worldwide, as leishmaniasis is a global problem.

Collecting insects using a light trap

Sandflies, the Vectors of leishmaniasis

Research Institutions in Türkiye	Ege University / Turkish Ministry of Health
Research Institutions in Japan	Graduate School of Agricultural and Life Science, The University of Tokyo / The Institution of Medical Science, The University of Tokyo / Japan Institute for Health Security
Research Period	5 Years

64 = The project for institutional capacity building for eliminating *Helicobacter pylori* related death =

Establishing a sustainable testing and treatment system to free humanity from gastric cancer!

Adoption Fiscal Year FY 2021

Principal Investigator
Prof. YAMAOKA Yoshio

Department of Environmental and Preventive Medicine, Oita University Faculty of Medicine

Kingdom of Bhutan

Principal Investigator
Dr. Kinzang P. Tshering

President, Khesar Gyalpo University of Medical Sciences of Bhutan

Toward a national H. pylori study using rapid testing and endoscope technology

The Kingdom of Bhutan has the world's third-highest mortality rate from gastric cancer. Many cases of gastric cancer are caused by *Helicobacter pylori* infection, and it is thought that more than half of the Bhutanese population in all age groups is infected. With the goal of controlling *H. pylori* infection and eradicating associated deaths, including those from gastric cancer, we have established a rapid testing method for *H. pylori* and are taking measures to counter drug resistance, which is a matter of concern. We are also working to improve the endoscopic skills required for gastric cancer treatment, and are planning a national *H. pylori* survey.

Endoscopy training at Jigme Dorji Wangchuck National Referral Hospital

Testing for H. pylori infection at the Bhutan Ministry of Health Royal Centre for Disease Control

Helping eradicate H. pylori-related deaths with improved techniques for diagnosis and treatment

We are working toward the domestic production of *in vitro* diagnostics that enable inexpensive, rapid *H. pylori* diagnosis. We are laying the foundations for genomic analysis, and will implement personalized eradication therapies. We are establishing a society of gastrointestinal endoscopy in Bhutan, and will improve the board-certification system. In collaboration with the government, we will conduct a national survey, and lay out the path toward eradicating *H. pylori*-associated deaths.

Epidemiological survey of H. pylori infection and educational activities for local residents

Research Institutions in Bhutan	Khesar Gyalpo University of Medical Sciences of Bhutan / Royal Center for Disease Control / Jigme Dorji Wangchuk National Referral Hospital
Research Institutions in Japan	Oita University
Research Period	5 Years

65 = The trilateral collaboration project for anti-infectious disease drug development: from lead optimization to preclinical testing =

Adoption Fiscal Year FY 2020

Enable discovery and development of medicines to fight infectious diseases in low- and middle-income countries

Principal Investigator
Prof. NOZAKI Tomoyoshi
Graduate School of Medicine,
The University of Tokyo

Malaysia
Principal Investigator
Assoc. Prof.
Yeun-Mun CHOO
Chemistry Department, Faculty of Science
University of Malaya

Indonesia
Principal Investigator
Prof. Dr. Eng. Agus Haryono, M.Sc
Deputy Chairman for Facilitation of Research and Innovation,
National Research and Innovation Agency (BRIN)

Use native biological resources to create medicines for tropical infectious diseases

This project will explore the natural microbial resources of Southeast Asia to discover compounds that might serve as new drugs to fight infectious diseases that cause problems on a global scale, like malaria or tuberculosis. Moreover, it will alter the structure of such compounds to improve their therapeutic effectiveness and safety, and develop them as pharmaceuticals intended for human use. In addition to transferring technologies that are essential for drug discovery and development—including technologies for maintaining and using microbial resources, searching for compounds, synthesizing chemical compounds, and testing for safety—the project will develop relevant human resources and aim for project outcomes to be applied so that middle- and low-income countries can conduct drug discovery that makes use of microbial resources.

Monkey Experiment Facility in Indonesia

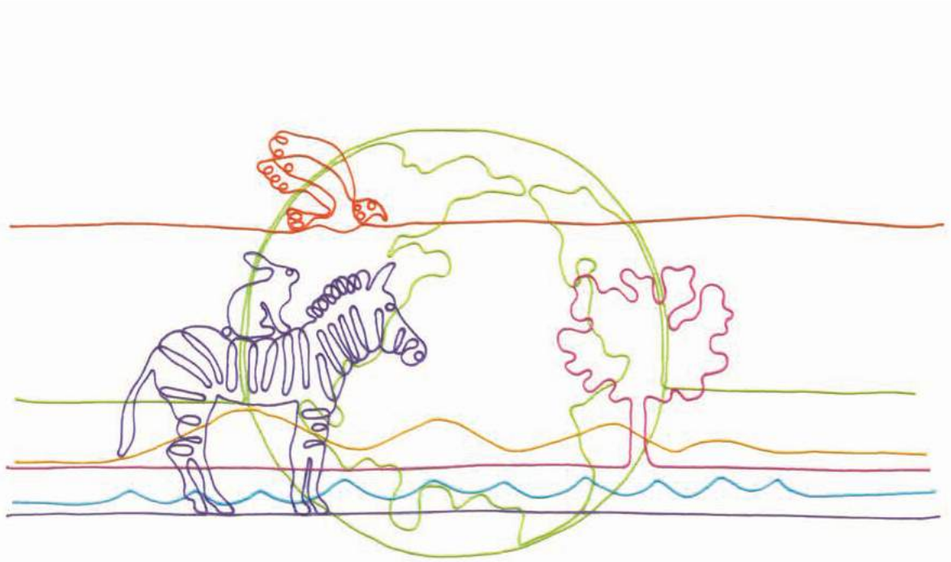
High-throughput screening in Indonesia

Establish technologies and construct societies capable of using abundant biological resources to develop medicines

This project will establish an international network and a basis for drug development using each country's own resources together with other Southeast Asia partner countries. The drug discovery platform will also be available for use by Japan to develop new remedies for various ailments. It is expected that new drugs for fighting infectious diseases will be adopted for use in society after undergoing clinical trials.

Research Institutions in Indonesia & Malaysia	Indonesia: National Research and Innovation Agency (BRIN) / IPB University Malaysia: University of Malaya / Universiti Teknologi Mara / Universiti Putra Malaysia
Research Institutions in Japan	The University of Tokyo / Nagoya Institute of Technology / Bozo Research Center
Research Period	5 Years

Chemical synthesis optimization in Malaysia



Environment /Energy (Global-scale Environmental Issues)

Using remote sensing for more efficient damage assessment of wet-field rice

Republic of Indonesia

Help enhance crop insurance as a climate change mitigation measure

Crop insurance, which is expected to be a useful measure for dealing with climate change, is operated as an element of social infrastructure that is important for food security, but faces many problems in Indonesia, which has little experience of its operation. The greatest problems are speeding up damage assessment, which is at the heart of crop insurance, and the objectivity of the assessment results. Our aim in this project was to develop a fast, highly objective damage assessment procedure for wet-field rice affected by drought, pest and disease, and flooding, all of which are covered by insurance, and to implement it in West Java and Bali provinces.

Conventional damage assessments consist of a visual inspection conducted by an assessor, but in this project we created an assessment process utilizing spatial information from sources including UAVs and satellite data, which was integrated with the current method to develop a new damage assessment method. Validation confirmed that this method required less time and labor for objective assessments, and that it is an effective method of damage assessment in crop insurance. It was summarized in guidelines, and an approach to the central government with a view to its operation resulted in a favorable appraisal. Its use is expected to be expanded inside and outside West Java in future

The damage assessment procedure that we developed enables crop growth status to be evaluated field by field rapidly and across a wide area, and as the information required for the assessment can also be used for other purposes, we anticipate that in future it will be applied to a range of pest and disease and crops other than rice, and that it will be useful across a wide range of other needs in the agricultural sector in addition to crop insurance. Young people leaving the agricultural sector is a serious problem in Indonesia, and the use of high-tech sources such as UAVs and satellite images in this project may not only help modernize agriculture but could also offer a new path into agriculture for young people.

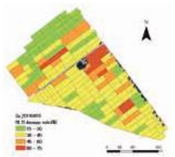


Figure 1. Damage assessment map of bacterial leaf blight of rice assessed from UAV data (evaluation results by field)

Figure 2. UAV training for damage assessors

"Development and Implementation of New Damage Assessment Process in Agricultural Insurance as Adaptation to Climate Change for Food Security"
Principal Investigator: Associate Prof. HONGO Chiharu Adoption Fiscal Year FY 2016

Disaster Prevention and Mitigation

Prevent tsunami damage through a seafloor observation network and disaster education

United Mexican States

Establish a disaster education program and extend it to Central and South America

Mexico's Pacific coastline has suffered from numerous earthquakes and tsunamis over the past 250 years, but the coastal part of Guerrero Province last experienced a major earthquake in 1911. This is because of repeated "slow slip" every few years, which releases some of the interplate distortion without a tremor occurring. However, not all the distortion is released through slow slip, and as the accumulated distortion between the plates is highly likely to cause a massive earthquake in the near future, the creation of a seabed observation network for tsunami-causing seabed earthquakes is an urgent task.

We therefore introduced Japanese knowledge and seafloor observation technology to create a seafloor observation network, and investigated interplate locking in the interaction between slow slip and massive earthquakes. We also prepared and validated hazard risk maps, and established a disaster education program taking account of the local social, economic, and cultural environment as a measure to prevent tsunami damage. Using this program, we have been spreading everyday disaster preparations through the region as a whole, in collaboration with local disaster-prevention agencies.

The results of this project received a good response in Mexico, and there are hopes that these research activities will be continued in the country. Moves are now underway to extend the tsunami disaster education program in particular to other parts of Mexico and to countries in Central and South America and the Caribbean.

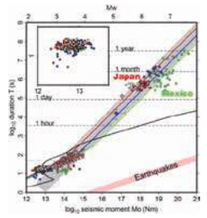


Figure 1.
Diagram showing the difference in slow slip between Japan and Mexico in terms of earthquake size (moment) and duration. The green points are in Mexico, and the red, pink, and white points are in Japan. The Mexican points are systematically to the right of those in Japan.

Figure 2.
Warning signs in a shopping street and at the coast.

"Hazard Assessment of Large Earthquakes and Tsunamis in the Mexican Pacific Coast for Disaster Mitigation"
Principal Investigator: Associate Prof. ITO Yoshihiro Adoption Fiscal Year FY 2015

Environment /Energy (Carbon Neutrality)

Relieve congestion and reduce CO_2 emissions by increasing traffic visibility

India

Solution for transportation and environment challenges by smart mobility

The negative impacts of the increased road traffic, environmental destruction, and fatal accidents by imbalance between them and Indian's rapid economic development are becoming a major social problem. Their resolutions will require understanding the actual situation of urban traffic, which has been difficult to assess before. Our aim was to use big-data analysis based on the latest sensing technology and traffic theory to assess the actual situation, establish shared methods for its resolution, and build a system that enables model shifts.

In this project, we accurately measured traffic by using artificial intelligence (AI) image technology, and developed a system that displays appropriate choice of transport by mobile devices and variable message signboards (VMSs), which are already widely used, to enable the use of multiple modalities including public transportation. In metropolitan activity rerocation simulation covering the entire city, this was predicted enable a reduction in CO_2 emissions of up to 7.1% in 2035. We also actively publicized this technology through workshops and handbook publication and distribution.

The Indian Institute of Technology Hyderabad (IITI) has been continuing to use technology to analyze traffic in the city of Ahmedabad. The lead research institution has focused on the development of urban Intelligent Transport Systems (ITSs) in Bengaluru, and is due to install India's first Japanese-type signal controls. The results of this project will be utilized in social infrastructure, which should both resolve traffic congestion and reduce CO_2 emissions.

Figure 1.
Outcomes (technologies) for main study items introduced in Handbook Part II

"Smart Cities Development for Emerging Countries by Multimodal Transport System Based on Sensing, Network and Big Data Analysis of Regional Transportation"
Principal Investigator: Dr. TSUBOI Tsutomu Adoption Fiscal Year FY 2016

Infectious Diseases Control

Rapid diagnosis of rabies and a new information-sharing app to be introduced nationwide in the Philippines

Philippines

Quick, convenient detection of rabies allowing swift response and outbreak control

Rabies is a serious problem in the Philippines, where it causes 200 to 300 deaths and more than 1 million people to receive preventive treatment with vaccines and rabies globulin following animal bites every year. A large factor that has made it difficult to control rabies in the region is the complexity of rabies testing procedures and limited testing facilities available. As a result, many rabid animals go undetected, posing a risk of disease spread. A technology that would allow rabies testing to be conducted anywhere and the introduction of rapid local control measures was needed.

Owing to a rapid diagnostic kit developed by Oita University and a local company, combined with a simplified specimen collection technique, it is now possible to diagnose rabid animals anywhere. Furthermore, an app was developed by the project to share information and provide alerts to responding personnel and residents after rabid animals have been diagnosed, enabling rapid coordination among various departments through the One Health approach. This innovative method has been implemented in 32 provinces across the Philippines, and used to identify more than 300 rabid animals in the field, contributing to rapid local containment and control of rabies.

The method is still being applied in many areas of the Philippines even after the project's completion, helping to combat rabies. Future expansion to areas where the method has not yet been introduced is planned, with the goal of controlling rabies country-wide. Furthermore, it is hoped that this initiative will be introduced to other countries in Asia and Africa where rabies is a problem, further contributing to international rabies control.

Figure 1. Rapid diagnosis of rabies

Figure 2.
Project method introduction results: In 32 provinces across 10 regions, the method has been used to detect more than 300 rabid animals (as of project end in August 2023)

"The Establishment of the One Health Prevention and Treatment Network Model for the Elimination of Rabies in the Philippines"
Principal Investigator: Prof. NISHIZONO Akira Adoption Fiscal Year FY 2017

Biosources

Popularization of fertilizing technology for increasing rice yield with less fertilizer

Republic of Madagascar

Help resolve issues of poverty and nutrition in Africa

Madagascar is a major rice-producing country, with rice consumption per person in over twice that in Japan, and more than half the population is engaged in rice cultivation. However, farmers' poverty means that they are unable to buy much fertilizer, and because much of the soil is weathered and unable to supply phosphates, which are essential for crop growth, the rice yield remains stubbornly low. There is thus a need for rice production techniques that efficiently improve production despite a low nutrient supply from fertilizers and soil.

Taking inspiration from Japanese rice cultivation techniques used in the late 19th and early 20th centuries, we developed a phosphate immersion treatment that can efficiently improve wet-field rice yield with the application of a small amount of fertilizer even in weathered soils that lack nutrients. This technique is a simple procedure that involves coating the roots of wet-field rice plants with a slurry made from a mixture of phosphate fertilizer and paddy-field soil before they are transplanted, and has been shown to double the efficiency of fertilizer use compared with regular methods. Repeated investigations in local farmers' fields showed that this technique shortened cultivation time and improved initial growth, making it useful under a range of environmental stresses such as cold-induced sterility.

Our results attracted interest from the government and civil society. We have begun marketing it a a new technique that can be used even by poor farmers, and it is now spreading among farming communities in the country. Based on a four-year study of household finances, the increased rice yield generated by this project had a positive effect on both farmers' income and their nutritional intake, and the spread of this technique should contribute to a stable rice supply and lead to reducing poverty and improving nutritional intake in farming communities.

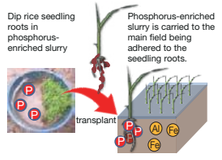


Figure 1. P-dipping method

Phosphorus is placed around the root system which enhances fertilizer use efficiency of rice

"Breakthrough in Nutrient Use Efficiency for Rice by Genetic Improvement and Fertility Sensing Techniques in Africa"
Principal Investigator: Dr. TSUJIMOTO Yasuhiro Adoption Fiscal Year FY 2016

Environment/Energy (Global - scale Environmental Issues)

2025	✻	Big Data Platform for Water Environment Monitoring and Data-Driven Policy Implementation	Prof. KAZAMA So	Graduate School of Engineering, Tohoku University	Sri Lanka	—
2025	✻	Development of Digital Network Platform for Integrated Modelling to Assess Grassland and Gobi Desert Ecosystem Resilience against Climate Change and Human Activities	Prof. NAGAI Masahiko	Center for Research and Application of Satellite Remote Sensing, Organization for Research Initiatives, Yamaguchi University	Mongolia	—
2025	✻	Implementing Water Quality Monitoring and Purification Technologies to Mitigate Health Risks for Antimicrobial Resistances (AMR) in the Dhaka Metropolitan Area	Prof. WATANABE Kozo	Division of Ecosystem Health Sciences, Center for Marine Environmental Studies, Ehime University	Bangladesh	—
2024	1	Next-generation Smart Mining Plus for Sustainable Resources Development	Prof. KAWAMURA Yohei	Faculty of Engineering, Hokkaido University	Kazakhstan	p24
2024	2	Development of a Satellite Data and a Regional Chemical Transport Modeling-based Air Pollution Assessment System and Formation of a Research Center for Air Pollution Studies	Prof. NAWA Nobutoshi	Graduate School of Medical and Dental Sciences, Institute of Science Tokyo	Kyrgyz	p24
2024	3	Utilization of Agricultural Wastes for Plastic Alternative Productions to Establish a Circular Economy	Prof. YAMAMOTO Mitsuo	Graduate School of Agricultural and Life Sciences, The University of Tokyo	Egypt	p25
2023	4	Securing the Sustainability of Oasis Societies Associated with Water and Land Use in the Western Desert	Prof. IWASAKI Erina	Faculty of Foreign Studies, Department of French Studies, Sophia University	Egypt	p25
2023	5	Utilization Technology of Rubber Seeds for Green Products to Mitigate Global Warming and Plastic Pollution	Associate Prof. KANEHASHI Shinji	Graduate School of Engineering, Tokyo University of Agriculture and Technology	Thailand	p26
2023	6	Risk-based Participatory WASH Planning and Citizen-data WASH Statistics for African Peri-urban Settlements	Associate Prof. HARADA Hidenori	The Center for African Area Studies, Kyoto University	Zambia	p26
2022	7	Establishing Sustainable Water Supply System Resilient to the Contamination of Drinking Water Sources	Professor FUJIOKA Takahiro	Graduate School of Integrated Science and Technology, Nagasaki University	VietNam	p27
2022	8	Development of Easy-operation High-tech Analytical Devices and Human Resource for Food Safety and Environmental Quality Control	Prof. MAWATARI Kazuma	Graduate School of Information, Production and Systems, Waseda University	VietNam	p27
2022	9	Development of Palm Oil Mill Effluent (POME) Treatment System for Sustainable Energy Production and Resource Recovery based on Material Innovation	Prof. YOSHIDA Naoko	Institute of Materials and Systems for Sustainability, Nagoya University	Malaysia	p28
2021	10	Strengthening Tropical Forest Resilience Based on Management and Utilization of Genetic Resources Capable of Climate Change Adaptation	Prof. Dr. TANI Naoki	Senior Researcher, Forestry Division, Japan International Research Center for Agricultural Sciences (JIRCAS)	Indonesia	p28
2021	11	Establishment of Risk Management Platform for Air Pollution in Cambodia	Prof. FURUUCHI Masami	Faculty of Geosciences and Civil Engineering, Institute of Science and Engineering, Kanazawa University	Cambodia	p29
2021	12	Innovation of Science and Technology on Natural Rubber for Global Carbon Process	Prof. YAMAGUCHI Takashi	Graduate School of Engineering, Nagaoka University of Technology	VietNam	p29
2020	13	Development of Innovative Climate Resilient Technologies for Monitoring and Controlling of Water Use Efficiency and Impact of Salinization on Crop Productivity and Livelihood in Aral Sea region	Prof. TANAKA Kenji	Disaster Prevention Research Institute, Kyoto University	Uzbekistan	p30
2020	14	Establishment of Integrated Forest Management System Model for Conservation of Mountain Forest Ecosystems in the Andean - Amazon	Re-employed Research Specialist HIRATA Yasumasa	Forest Research and Management Organization, Forestry and Forest Products Research Institute	Peru	p30
2019	15	Formation of a Center of Excellence for Marine Plastic Pollution Studies in the Southeast Asian Seas	Prof. ISOBE Atsuhiko	Center for Oceanic and Atmospheric Research, Research Institute for Applied Mechanics, Kyusyu University	Thailand	p31
2019	16	Development of Management Systems for Multiple Utilization of Biodiversity in the Tropical Rainforests at the Producted Areas in Sarawak	Prof. ITIOKA Takao	Graguate School of Global Environmental Studies, Kyoto University	Malaysia	p31
2019	17	Establishment of a Sustainable Community Development Model based on Integrated Natural Resource Management Systems in Lake Malawi National Park	Distinguished Prof. SATO Tetsu	SDGs Promotion Office, Ehime University	Malawi	p32

Environment/Energy (Carbon Neutrality)

2025	✻	Regional BCG Economy and Carbon Neutrality with Hydrothermal-Based Biorefinery for Coastal Ecosystem	Prof. KIDA Tetsuya	Institute of Industrial Nanomaterials (IINa), Kumamoto University	Thailand	—
2025	✻	Conversion of Weeds and Crop Residues into Organic Fertilizer and Electricity for Agriculture Production in Mine Clearance Areas in Banan district, Battambang Province in Northwestern Cambodia, by Introducing of Rumen Hybrid Methane Fermentation System	Associate Prof. BABA Yasunori	Research Institute for Bioresources and Biotechnology, Ishikawa Prefectural University	Cambodia	—
2024	18	Transforming the Cassava Production System in Vietnam by Establishing Regenerative Farming and Smart Starch Supply Chain Management	Prof. SHINANO Takuro	Graduate School of Agriculture, Hokkaido University	VietNam	p34
2024	19	Data Driven Dynamic Transport Management in Emerging Metropolis for Climate Change Mitigation	Prof. FUKUDA Daisuke	Graduate School of Engineering, The University of Tokyo	Thailand	p34
2024	20	Valorization of Disposal Biomass for Chemical Production Based on Biorefinery Concept	Prof. YOKOI Toshiyuki	Institute of Integrated Research, Institute of Science Tokyo	Thailand	p35
2023	21	Development and Social Implementation of Greenhouse Gas Emission Reduction Technologies in Paddy Fields of West Tonle Sap Lake by Establishing a Large Paddy Area Water Management System	Sub Project Leader WATANABE Mamoru	Rural Development Division, Japan International Research Center for Agricultural Sciences	Cambodia	p35
2023	22	Development of Integrated Bio-circular Economy from Food and Energy Estate Waste Fraction to Biofuel and Bio-chemicals	Prof. OGINO Chiaki	Department of Chemical Science and Engineering, Graduate School of Engineering, Kobe University	Indonesia	p36
2023	23	Development of Innovative Technologies for Efficient Generation of Green/Blue Hydrogen for Realization of Carbon-neutral Society with Consideration of Industrial and Environmental Characteristics in the Region	Prof. SUGAI Yuichi	Faculty of Engineering, Kyushu University	Uzbekistan	p36
2022	24	Integrated Sustainable Energy and Food Production from Microalgae-based Carbon Capture and Utilization	Team Director MOCHIDA Keiichi	Center for Sustainable Resource Science, RIKEN	Indonesia	p37
2021	25	Development of New Ammonia Synthesis System using Renewable Energy and Hydrogen	Prof. AIKA Ken-ichi	National Institute of Technology (KOSEN), Numazu College	South Africa	p37
2021	26	Development of a Decarbonized Heat Energy Supply System using Ground Heat Source	Prof. INAGAKI Fumiaki	Graduate School of International Resource Sciences, Akita University	Tajikistan	p38
2020	27	Development of a Carbon Recycling System toward a Decarbonized Society by using Mineral Carbonation	Prof. IIZUKA Atsushi	Graduate School of Environmental Studies, Tohoku University	South Africa	p38
2020	28	Development of the Duckweed Holobiont Resource Values towards Thailand BCG Economy	Prof. MORIKAWA Masaaki	Faculty of Environmental Earth Science, Hokkaido University	Thailand	p39
2019	29	Development of Low-Carbon Affordable Apartments in the Hot-Humid Climate of Indonesia towards Paris Agreement 2030	Prof. KUBOTA Tetsu	Graduate School of Advanced Science and Engineering, Hiroshima University	Indonesia	p39
2019	30	Comprehensive Solutions for Optimum Development of Geothermal Systems in East African Rift Valley	Prof. FUJIMITSU Yasuhiro	Faculty of Engineering, Kyushu University	Kenya	p40

Bioresources

2025	✻	Mitigation of Wheat Blast by Integrated Pest Management	Associate Prof. IKEDA Kenichi	Graduate School of Agricultural Sciences, Kobe University	Paraguay	—
2025	✻	Development and Promotion of Sustainable Perennial Rice Production System Using Multiple Crop Harvesting Technologies	Prof. SAKAGAMI Jun-Ichi	Faculty of Agriculture, Kagoshima University	Uganda	—
2025	✻	Implementation of a Comprehensive Sweet Potato Seedling Management System for National Food Security	Associate Prof. MAEJIMA Kensaku	Graduate School of Agricultural and Life Sciences, The University of Tokyo	Solomon Islands	—
2024	31	Establishment of Research and Disease Control Systems for Eradication of Dourine	Prof. INOUE Noboru	Director General, National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine	Mongolia	p42
2024	32	Development of the Sustainable and Diversified Rice Farming System by Reflecting the Importance of Forest Functions	Project leader TSUJIMOTO Yasuhiro	Crop, Livestock and Environment Division, Japan International Research Center for Agricultural Sciences	Madagascar	p42
2023	33	Development of Sustainable Seaweed Based Functional Products for Promoting Blue Economy	Prof. ICHIKAWA Sosaku	Institute of Life and Environmental Sciences, University of Tsukuba	Indonesia	p43

Bioresources

2022	34	Establishment of an Alert System for Fusarium oxysporum f. sp. cubense, the Banana and Plantain Wilt Pathogen, and Mitigation Strategy of the Disease	Prof. ARIE Tsutomu	Institute of Agriculture, Tokyo University of Agriculture and Technology	Peru	p43
2022	35	Recovering High-Value Bioproducts for Sustainable Fisheries in Chile (ReBiS)	Prof. ONODA Akira	Faculty of Environmental Earth Science, Hokkaido University	Chile	p44
2022	36	Breeding Innovation in Chili Pepper and Tomato to Accelerate Sustainable Vegetable Production in Tropical Regions	Associate Prof. KANG Seung won	Faculty of Life and Environmental Sciences, University of Tsukuba	Indonesia	p44
2022	37	The Establishment of an Immediate Rice Variety Development System using Anther Culture and Citizen Science	Prof. KONDO Takumi	Research Faculty of Agriculture, Hokkaido University	Zambia	p45
2021	38	Creation of Beef Value Chain by Optimizing Ruminal Microbiota and Grassland Management on Digital Platform	Prof. OHKURA Satoshi	Graduate School of Bioagricultural Sciences, Nagoya University	Colombia	p45
2021	39	Development of Breeding and Water Management Technologies for Safe and Nutritious Rice Production	Associate Prof. KAMIYA Takehiro	Graduate School of Agricultural and Life Sciences, The University of Tokyo	Bangladesh	p46
2021	40	Establishment of Nitrogen-efficient Wheat Production Systems in Indo-Gangetic Plains by the Deployment of BNI-technology	Dr. TOBITA Satoshi	Specially Assigned Investigator, Japan International Research Center for Agricultural Sciences (JIRCAS)	India	p46
2020	41	Eco-engineering for Agricultural Revitalization Towards improvement of Human nutrition (EARTH): Water hyacinth to energy and agricultural crops	Prof. SATO Shinjiro	Department of Science and Engineering for Sustainable Innovation, Faculty of Science and Engineering, Soka University	Ethiopia	p47
2020	42	Project for Development of Complex Technologies for Prevention and Control of Rubber Tree Leaf Fall Diseases	Senior Visiting Scientist MATSUI Minami	Center for Sustainable Resource Science, RIKEN	Indonesia	p47
2020	43	Development of Novel Disease Management Systems for Banana and Cacao	Prof. WATANABE Kyoko	College of Agriculture, Tamagawa University	Philippines	p48
2019	44	Restoration of Pastureland by Effective Usage of Wild Forage Plants based on Traditional Knowledge of Nomadic Mongolians	Project Researcher ASAMI Tadao	Graduate School of Agricultural and Life Sciences, The University of Tokyo	Mongolia	p48
2019	45	Strengthening of Resilience in Arid Agro-Ecosystems Vulnerable to Climate Change, Through Research on Plant Resources and Technological Applications	Dr. FUJITA Yasunari	Program Director, Food Program, Japan International Research Center for Agricultural Sciences (JIRCAS)	Bolivia	p49

Disaster Prevention and Mitigation

2025	✻	Improvement of Inundation Forecast to Develop Flood Resilient Society under Climate Change	Prof. TERAO Toru	Faculty of Education, Kagawa University	Bangladesh	—
2025	✻	Integrated Risk Assessment and Digitalised Community-based Early Warning System for Landslides and Debris Flows in Central Vietnam: Harnessing Remote Sensing Technologies and Evaluating Mitigation Measures with Cost-Benefit Analysis in Hue	Prof. WAKAI Akihiko	Graduate School of Science and Technology, Gunma University	VietNam	—
2024	46	Development of End-to-End Earthquake Early Warning and Response System	Researcher INOUE Hiroshi	Disaster Prevention Research Institute, Kyoto University	Indonesia	p52
2024	47	Development of Integrated Sediment and Environmental Management towards Sustainable Conservation, Disaster Risk Reduction, and Livelihood Improvements in Coastal Areas	Prof. TAJIMA Yoshimitsu	Department of Civil Engineering, Graduate School of Engineering, The University of Tokyo	Ghana	p52
2023	48	Disaster Risk Reduction of Widespread Volcanic Hazards in Southwest Pacific Countries	Prof. ICHIHARA Mie	Earthquake Research Institute, The University of Tokyo	Tonga / Vanuatu / Fiji	p53
2023	49	Compound Disaster Risk Reduction associated with Large Earthquakes and Tsunamis	Associate Prof. NAKANO Genta	Disaster Prevention Research Institute, Kyoto University	El Salvador / Mexico	p53
2022	50	Establishment of a Research and Education Complex for Developing Disaster-resilient Societies – MARTEST	Designated Prof. / Vice Director of IECMS KANEDA Yoshiyuki	Institute of Education, Research and Regional Cooperation for Crisis Management Shikoku (IECMS), Kagawa University	Türkiye	p54
2022	51	Real-Time Lightning 3D Imaging and Forecasting Project for Sustainable and Reliable Supply of Energy and Storm Disaster Early Warning	Prof. MORIMOTO Takeshi	Faculty of Science and Engineering, Kindai University	Malaysia	p54
2021	52	Numerical Weather Prediction and Warning Communication System for Densely Populated and Vulnerable Cities	Team Director MIYOSHI Takemasa	Prediction Science Research Team, Division of Applied Mathematical Science, RIKEN Center for Interdisciplinary Theoretical and Mathematical Sciences	Argentina	p55
2021	53	Building Sustainable System for Resilience and Innovation in Coastal Community	Prof. MORI Nobuhito	Disaster Prevention Research Institute, Kyoto University	Indonesia	p55
2020	54	Development of Integrated Expert System for Estimation and Observation of Damage Level of Infrastructure in Lima Metropolitan Area	Prof. KUSUNOKI Koichi	Earthquake Research Institute, The University of Tokyo	Peru	p56
2020	55	The Project for Technology Development on Life Time Management of Road and Bridge for Strengthening Resilience in Thailand	Prof. SATO Yasuhiko	Department of Civil and Environmental Engineering, School of Creative Science and Engineering, Waseda University	Thailand	p56
2019	56	Development of a Hybrid Water-Related Disaster Risk Assessment Technology for Sustainable Local Economic Development Policy under Climate Change	Prof. OHARA Miho	Center for Integrated Disaster Information Research, Interfaculty Initiative in Information Studies, The University of Tokyo	Philippines	p57

Infectious Diseases Control*

2025	✻	The Project for Research and Development for the Control of HDV Infection	Associate Professor KOMA Takaaki	Graduate School of Medicine, Tokushima University	Mongolia	—
2025	✻	The project for the development of infection and pathological risk assessment systems for leishmaniasis and Chagas disease	Professor KATO Hirotomo	Jichi Medical University	Republic of Ecuador	—
2024	57	The project for assessing genetic diversity of Vibrio cholerae using cloud computing and developing potential therapeutics against cholera	Director IIDA Tetsuya	Research Institute for Microbial Diseases, Osaka University	India	p60
2024	58	Project for the Sustainable Control of Zoonotic Malaria through an Integrated Approach	Prof. KANEKO Osamu	Institute of Tropical Medicine, Nagasaki University	Malaysia	p60
2023	59	Implementation of KITASATO-drug discovery and development in schistosomiasis endemic areas for its eradication	Prof. TSUJI Naotoshi	Kitasato University School of Medicine, The Kitasato Institute	Republic of Ghana	p61
2023	60	Co-designing neglected zoonosis intervention through One Health, education, and public-private partnership	Prof. MAKITA Kohei	School of Veterinary Medicine, Rakuno Gakuen University	United Republic of Tanzania	p61
2022	61	Project for malaria and neglected parasitic diseases control and elimination using advanced research technique, communication tools and eco-health education	Dr. IWAGAMI Moritoshi	Chief, Department of Tropical Medicine and Malaria Research Institute, National Center for Global Health and Medicine (NCGM)	Laos	p62
2022	62	Project for Integrated Research and Development towards Control and Elimination of Schistosomiasis	Prof. HAMANO Shinjiro	Department of Parasitology, Institute of Tropical Medicine, Nagasaki University	Kenya	p62
2021	63	The project for One Health approach to control of Neglected Tropical Diseases with special attention on sandfly and mosquito borne infections in Türkiye	Associate Prof. SANJOBA Chizu	Laboratory of Molecular Immunology, Graduate School of Agricultural and Life Sciences, The University of Tokyo	Türkiye	p63
2021	64	The project for institutional capacity building for eliminating Helicobacter pylori related death	Prof. YAMAOKA Yoshio	Department of Environmental and Preventive Medicine, Oita University Faculty of Medicine	Bhutan	p63
2020	65	The trilateral collaboration project for anti-infectious disease drug development: from lead optimization to preclinical testing	Prof. NOZAKI Tomoyoshi	Department of Biomedical Chemistry, Graduate School of Medicine, The University of Tokyo	Indonesia / Malaysia	p64

✻ New projects

* SATREPS projects in the field of Infectious Diseases Control have been transferred to AMED – the Japan Agency for Medical Research and Development.
(The transfer took place on April 1, 2015. Projects that finished before that date were not transferred.)

● Finished Projects

Environment/Energy (Climate Change)

2009	Carbon Dynamics of Amazonian Forests	Dr. ISHIZUKA Moriyoshi	Forestry and Forest Products Research Institute (FFPRI)	Brazil
	Study on the Impact of Glacier Retreat on Water Resource Availability for the Cities of La Paz and El Alto	Prof. TANAKA Hitoshi	Graduate School of Engineering, Tohoku University	Bolivia
	Prediction of Climate Variations and its Application in the Southern African Region	Dr. YAMAGATA Toshio	Japan Agency for Marine-Earth Science and Technology (JAMSTEC)	South Africa
	Climate Variability Study and Societal Application through Indonesia - Japan "Maritime Continent COE" - Radar-Buoy Network Optimization for Rainfall Prediction	Dr. YAMANAKA Manabu	Japan Agency for Marine-Earth Science and Technology (JAMSTEC)	Indonesia
2008	Wild Fire and Carbon Management in Peat-forest in Indonesia	Prof. OSAKI Mitsuru	Graduate School of Agriculture, Hokkaido University	Indonesia
	Integrated Study Project on Hydro-Meteorological Prediction and Adaptation to Climate Change in Thailand (IMPAC-T)	Prof. OKI Taikan	Institute of Industrial Science, The University of Tokyo	Thailand
	Eco-technological Management of Tuvalu against Sea Level Rise	Prof. KAYANNE Hajime	Graduate School of Science, The University of Tokyo	Tuvalu
	Research on Ethanol Production from Sugarcane Wastes	Director, Dr. HIRATA Satoshi	Biomass Refinery Research Center, National Institute of Advanced Industrial Science and Technology (AIST)	Brazil

Environment / Energy (Global-scale Environmental Issues)

2018	Sustainable Replantation of Oil Palm by Adding Value to Oil Palm Trunk through Scientific and Technological Innovation	Dr. KOSUGI Akihiko	Project Leader, Biological Resources and Post-harvest Division, Japan International Research Center for Agricultural Sciences	Malaysia
	Advanced and Sustainable Methods on Water Utilization Associated with Greening Potential Evaluation	Prof. SHIMADA Sawahiko	Department of Bioproduction and Environment Engineering, Faculty of Regional Environment Science, Tokyo University of Agriculture	Djibouti
2017	Establishment of Environmentally Sound Management of Construction and Demolition Waste and Its Wise Utilization for Environmental Pollution Control and for New Recycled Construction Materials	Prof. KAWAMOTO Ken	Graduate School of Science and Engineering, Saitama University	VietNam
	Co-creation of Innovative Forest Resources Management Combining Ecological Methods and Indigenous Knowledge	Associate Prof. YASUOKA Hirokazu	The Center for African Area Studies, Kyoto University	Cameroon
2016	Development of Next-Generation Sustainable Land Management (SLM) Framework to Combat Desertification	Prof. TSUNEKAWA Atsushi	Arid Land Research Center, Tottori University	Ethiopia
	Comprehensive Assessment and Conservation of Blue Carbon Ecosystems and Their Services in the Coral Triangle (Blue CARES)	Specially Appointed Prof. NADAOKA Kazuo	School of Environment and Society, Tokyo Institute of Technology	Philippines Indonesia
	Strengthening of the Environmental Radiation Control and Legislative Basis for the Environmental Remediation of Radioactively Contaminated Sites	Prof. NANBA Kenji	Faculty of Symbiotic Systems Science / Institute of Environmental Radioactivity at Fukushima University	Ukraine
	Development and Implementation of New Damage Assessment Process in Agricultural Insurance as Adaptation to Climate Change for Food Security	Associate Prof. HONGO Chiharu	Integrated Research Field of Remote Sensing Division, Center for Environmental Remote Sensing, Chiba University	Indonesia
2015	Visualization of Impact of Chronic / Latent Chemical Hazard and Geo-Ecological Remediation	Prof. ISHIZUKA Mayumi	Graduate School of Veterinary Medicine, Hokkaido University	Zambia
	Advancing Co-design of Integrated Strategies with Adaptation to Climate Change	Prof. OKI Taikan	Institute of Industrial Science, The University of Tokyo	Thailand
	Establishment of Environmental Conservation Platform of Tonle Sap Lake	Associate Prof. YOSHIMURA Chihiro	School of Environment and Society, Tokyo Institute of Technology	Cambodia
2014	Research on the Integration System of Spatial Environment Analyses and Advanced Metal Recovery to Ensure Sustainable Resource Development	Prof. ISHIYAMA Daizo	Graduate school of International Resource Science, Akita University	Serbia
2013	Hydro-microbiological Approach for Water Security in Kathmandu Valley, Nepal	Prof. KAZAMA Futaba	Interdisciplinary Research Centre for River Basin Environment, Graduate Faculty of Interdisciplinary Research, University of Yamanashi	Nepal
	Biodiversity Conservation in Amazon based on a New Concept of "Field Museum"	Prof. KOHSHIMA Shiro	Wildlife Research Center, Kyoto University	Brazil
	Development of Clean and Efficient Utilization of Low Rank Coals and Biomass by Solvent Treatment	Specially Appointed Prof. MIURA Koichi	Institute of Advanced Energy, Kyoto University	Thailand
2012	Sustainable Management of Coral Reef and Island Ecosystems: Responding to the Threat of Climate Change	Associate Prof. NAKAMURA Takashi	Faculty of Science, University of the Ryukyus	Palau
	Development of the Atmospheric Environmental Risk Management System in South America	Prof. MIZUNO Akira	Institute for Space-Earth Environmental Research, Nagoya University	Argentina Chile
2011	Enhancing Resilience to Climate and Ecosystem Changes in Semi-Arid Africa: an Integrated Approach	Director, Prof. TAKEUCHI Kazuhiko	Integrated Research System for Sustainability Science(IR3S), The University of Tokyo	Ghana
2010	Development of Pollution Control and Environmental Restoration Technologies of Waste Landfill Sites Taking into Account Geographical Characteristics in Sri Lanka	Prof. TANAKA Norio	International Institute for Resilient Society, Saitama University	Sri Lanka
	UASB - DHS Integrated System — A Sustainable Sewage Treatment Technology	Prof. HARADA Hideki	New Industry Creation Hatchery Center, Tohoku University	India
	Establishment of Carbon-Cycle-System with Natural Rubber	Prof. FUKUDA Masao	School of Engineering, Nagaoka University of Technology	VietNam
	Joint Research Project on Formation Mechanism of Ozone, VOCs, and PM2.5 and Proposal of Countermeasure Scenario	Prof. WAKAMATSU Shinji	Faculty of Agriculture, Ehime University	Mexico
2009	Research Partnership for the Application of Low Carbon Technology for Sustainable Development	Director General, Prof. SUZUKI Yutaka	Kansai Research Centre, Institute for Global Environmental Strategies (IGES)	India
	Improving Sustainable Water and Sanitation Systems in Sahel Region in Africa: Case of Burkina Faso	Prof. FUNAMIZU Naoyuki	Graduate School of Engineering, Hokkaido University	Burkina-Faso
2008	Sustainable Systems for Food and Bio-energy Production with Water-saving Irrigation in the Egyptian Nile Basin	Prof. Emeritus SATOH Masayoshi	Faculty of Life and Environmental Sciences, University of Tsukuba	Egypt
	Conservation of Biodiversity in Tropical Forest through Sustainable Coexistence between Human and Wild Animals	Prof. YAMAGIWA Juichi	Graduate School of Science, Kyoto University	Gabon
	Research and Development for Water Reuse Technology in Tropical Regions	Prof. YAMAMOTO Kazuo	Environmental Science Center, The University of Tokyo	Thailand

Environment / Energy (Carbon Neutrality)

2017	Development of Advanced Hybrid Ocean Thermal Energy Conversion (OTEC) Technology for Low Carbon Society and Sustainable Energy System: First Experimental OTEC Plant of Malaysia	Prof. IKEGAMI Yasuyuki	Director, Institute of Ocean Energy, Saga University	Malaysia
	Development and Dissemination of Innovative Oil-Extracting Technology from Crop Process Residue for Rural Electrification and Value Addition of By-products	Research Prof. / Emeritus Prof. SAKO Takeshi	Energy System Section, Graduate School of Science and Technology, Shizuoka University	Tanzania
2017	Thermoluminescence Techniques in Geothermal Exploration and Integrated Evaluation System of Geothermal Reservoir	Prof. Emeritus / Visiting Prof. TSUCHIYA Noriyoshi	Graduate School of Environmental Studies, Tohoku University President of National Institute of Technology (KOSEN), Hachinohe College	El Salvador
	Smart Transport Strategy for Thailand 4.0	Distinguished Prof. HAYASHI Yoshitsugu	Center for Sustainable Development and Global Smart City, Chubu University	Thailand
2016	Comprehensive Conversion of Biomass and Waste to Super Clean Fuels by New Solid Catalysts	Prof. TSUBAKI Noritatsu	Faculty of Engineering, Academic Assembly, University of Toyama	Thailand
	Smart Cities Development for Emerging Countries by Multimodal Transport System Based on Sensing, Network and Big Data Analysis of Regional Transportation	General Manager TSUBOI Tsutomu	Global Business Development Office, Nagoya Electric Works Co., Ltd.	India
2015	Producing Biomass Energy and Material through Revegetation of Alang-alang (*Imperata Cylindrica*) Fields	Prof. UMEZAWA Toshiaki	Research Institute for Sustainable Humanosphere, Kyoto University	Indonesia
	Production of Biofuels Using Algal Biomass	Assistant Prof. KANDA Hideki	Graduate School of Engineering, Nagoya University	South Africa
2014	Technology Development of Steam-spot Detection and Sustainable Resource Use for Large Enhancement of Geothermal Power Generation in Indonesia	Prof. KOIKE Katsuaki	Graduate School of Engineering, Kyoto University	Indonesia
	Sustainable Development of Rural Area by Effective Utilization of Bio-wastes with Highly Efficient Fuel Cell Technology	Associate Prof. SHIRATORI Yusuke	Faculty of Engineering, Kyushu University / International Research Center for Hydrogen Energy, Kyushu University	VietNam
2013	Development of a Model System for Fluidized Bed Catalytic Gasification of Biomass Wastes and Following Liquid Fuel Production in Indonesia	Associate Prof. NODA Reiji	Graduate School of Science and Technology, Gunma University	Indonesia
2012	Promotion of Green Economy with Palm Oil Industry for Biodiversity Conservation	Prof. SHIRAI Yoshihito	Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology	Malaysia
2011	Information-based Optimization of Jatropha Biomass Energy Production in the Frost- and Drought-prone Regions of Botswana	Prof. AKASHI Kinya	Faculty of Agriculture, Tottori University	Botswana
	Multi-beneficial Measure for Mitigation of Climate Change in Vietnam and Indochina Countries by Development of Biomass Energy	Visiting Researcher MAEDA Yasuaki	Graduate School of Humanities and Sustainable System Sciences, Osaka Prefecture University	VietNam
	Pilot Study for Carbon Sequestration and Monitoring in Gundih Area, Central Java Province, Indonesia	Specially Appointed Prof. MATSUOKA Toshifumi	Center for the Promotion of Interdisciplinary Education and Research, Kyoto University	Indonesia
2010	Sustainable Jatropha Biofuel Production in Mozambique	Prof. IMOU Kenji	Graduate School of Agricultural and Life Sciences, The University of Tokyo	Mozambique
	Sahara Solar Energy Research Center	Visiting Prof. KOINUMA Hideomi	Graduate School of Frontier Sciences, The University of Tokyo	Algeria
	Development of Low Carbon Society Scenarios for Asian Regions	Prof. MATSUOKA Yuzuru	Graduate School of Engineering, Kyoto University	Malaysia
	Development of New Biodiesel Synthesis in Thailand	Prof. ASAMI Kenji	Faculty of Environmental Engineering, The University of Kitakyushu	Thailand

Bioresources

2019	The Acceleration of Live-stock Revolution in aiming to be the Kitchen of the World: Development of Novel Technologies Yielding Stable Livestock Production and Food Safety	Specially Appointed Prof. MISAWA Naoaki	Center for Animal Disease Control (CADIC), University of Miyazaki	Thailand
2018	Development of Climate Change Resilient Innovative Technologies for Sustainable Wheat Production in the Dry and Heat Prone Agro-ecologies of Sudan and Sub-Saharan Africa	Specially Appointed Prof. TSUJIMOTO Hisashi	Arid Land Research Center, Tottori University	Sudan
	Utilization of Thailand Local Genetic Resources to Develop Novel Farmed Fish for Global Market	Prof. HIRONO Ikuo	Faculty, Department of Marine Biosciences, Tokyo University of Marine Science and Technology	Thailand
2017	Strengthening Rice Breeding System based on Genomic Technology and Information in Myanmar	Prof. YOSHIMURA Atsushi	Faculty of Agriculture, Graduate School of Kyushu University	Myanmar
	Development of Harmful Algal Bloom Monitoring Methods and Forecast System for Sustainable Aquaculture and Coastal Fisheries in Chile	Prof. MARUYAMA Fumito	Office of Academic Research and Industry-Academia-Government and Community Collaboration, Hiroshima University	Chile
2016	Developing Countermeasures Against Striga to Conquer Poverty and Improve Food Security	Prof. SUGIMOTO Yukihiro	Graduate School of Agricultural Science, Kobe University	Sudan
	Breakthrough in Nutrient Use Efficiency for Rice by Genetic Improvement and Fertility Sensing Techniques in Africa	Dr. TSUJIMOTO Yasuhiro	Project Leader, Crop, Livestock and Environment Division, Japan International Research Center for Agricultural Sciences	Madagascar
	Project on Establishment of the Model for Fertilizing Cultivation Promotion Using Burkina Faso Phosphate Rock	Dr. NAGUMO Fujio	Senior Researcher, Crop, Livestock and Environment Division, Japan International Research Center for Agricultural Sciences	Burkina-Faso
	Optimizing Mariculture based on Big Data with Decision Support System	Prof. WADA Masaaki	School of Systems Information Science, Future University Hakodate	Indonesia
2015	Valorization of Bio-resources based on Scientific Evidence in Semi- and Arid Land for Creation of New Industry	Prof. ISODA Hiroko	Director, The Alliance for Research on the Mediterranean and North Africa / Faculty of Life and Environmental Sciences, University of Tsukuba	Tunisia/ Morocco
	Project for Development of Sericulture Research by Applying Biological Resources and Molecular Genetics	Group Leader KAMEDA Tsunenori	National Agriculture and Food Research Organization	Kenya
	Development and Dissemination of Sustainable Production System Based on Invasive Pest Management of Cassava in Vietnam, Cambodia and Thailand	Prof. TAKASU Keiji	Faculty of Agriculture, Kyushu University	VietNam/ Cambodia/ Thailand
	Continuous Operation System for Microalgae Production Optimized for Sustainable Tropical Aquaculture (COSMOS)	Prof. TODA Tatsuki	Department of Science and Engineering for Sustainable Innovation, Faculty of Science and Engineering, Soka University	Malaysia
2014	Establishment of Cryo-bank System for Vietnamese Native Pig Resources and Sustainable Production System to Conserve Bio-diversity	Advanced Researcher, Dr. KIKUCHI Kazuhiro	Institute of Agrobiological Sciences, NARO (National Agriculture and Food Research Organization) (NIAS)	Vietnam
	Development of Aquaponics Combined with Open Culture Adapting to Arid Regions for Sustainable Food Production	Prof. YAMADA Satoshi	Faculty of Agriculture, Tottori University	Mexico
2013	Development and Adoption of Latin American Low-input Rice Production System through Genetic Improvement and Advanced Field-management Technologies	Prof. OKADA Kensuke	Graduate School of Agricultural and Life Sciences, The University of Tokyo	Colombia
2012	Innovative Bio-production in Indonesia (iBioI): Integrated Bio-refinery Strategy to Promote Biomass Utilization using Super-microbes for Fuels and Chemicals Production	Prof. OGINO Chiaki	Graduate School of Engineering, Kobe University	Indonesia
	The Project on Rice Research for Tailor-made Breeding and Cultivation Technology Development in Kenya	Prof. YAMAUCHI Akira	Graduate School of Bioagricultural Sciences, Nagoya University	Kenya
	Diversity Assessment and Development of Sustainable Use of Mexican Genetic Resources	Prof. WATANABE Kazuo	Gene Research Center, University of Tsukuba	Mexico
2011	Flood- and Drought-Adaptive Cropping Systems to Conserve Water Environments in Semi-arid Regions	Prof. IIJIMA Morio	Faculty of Agriculture, Kindai University	Namibia
	Development of Aquaculture Technology for Food Security and Food Safety in the Next Generation	Research Prof. OKAMOTO Nobuaki	Tokyo University of Marine Science and Technology	Thailand
2010	Establishment of Sustainable Livelihood Strategies and Natural Resource Management in Tropical Rain Forest and its Surrounding Areas of Cameroon: Integrating the Global Environmental Concerns with Local Livelihood Needs	Prof. ARAKI Shigeru	The Center for African Area Studies, Kyoto University	Cameroon
	Comparative Studies of the Reproductive Biology and Early Life History of Two Tuna Species (Yellowfin Tuna and Pacific Bluefin Tuna) for the Sustainable Use of These Resources	Prof. SAWADA Yoshifumi	Fisheries Laboratory, Kindai University	Panama
	Development of Internationally Standardized Microbial Resource Center to Promote Life Science Research and Biotechnology	Acting Director-General, Dr. SUZUKI Ken-ichiro	Biological Resource Center, National Institute of Technology and Evaluation (NITE)	Indonesia
	The Project for the Development of Wheat Breeding Materials for Sustainable Food Production in Afghanistan	Prof. BAN Tomohiro	Kihara Institute for Biological Research, Yokohama City University	
	Development of Crop Genotypes for the Midlands and Mountain Areas of North Vietnam	Prof. YOSHIMURA Atsushi	Faculty of Agriculture, Kyusyu University	VietNam
2009	Innovation on Production and Automotive Utilization of Biofuels from Non-food Biomass	Dr. YOSHIMURA Yuji	Department of Energy and Environment, National Institute of Advanced Industrial Science and Technology (AIST)	Thailand
	Valorization of Bio-resources in Semi Arid and Arid Land for Regional Development	Prof. ISODA Hiroko	The Alliance for Research on North Africa, University of Tsukuba	Tunisia
	Sustainable Integration of Local Agriculture and Biomass Industries	Prof. SAKODA Akiyoshi	Institute of Industrial Science, The University of Tokyo	VietNam
	Development of Genetic Engineering Technology of Crops with Stress Tolerance against Degradation of Global Environment	Project Leader, Dr. NAKASHIMA Kazuo	Japan International Research Center for Agricultural Sciences (JIRCAS)	Brazil
	Improvement of Food Security in Semi-arid Regions of Sudan through Management of Root Parasitic Weeds	Prof. SUGIMOTO Yukihiro	Graduate School of Agricultural Science, Kobe University	Sudan
	Integrated Coastal Ecosystem Conservation and Adaptive Management under Local and Global Environmental Impacts	Prof. NADAOKA Kazuo	Graduate School of Information Science and Engineering, Tokyo Institute of Technology	Philippines

Disaster Prevention and Mitigation

2019	Development of Early Warning Technology of Rain-Induced Rapid and Long-Travelling Landslides	Dr. KONAGAI Kazuo	Principal Researcher, Research Division, International Consortium on Landslides	Sri Lanka
2018	Development and Operation Model of Plant-derived Soil Additives for Road Disaster Reduction on Problematic Soil	Prof. KIMURA Makoto	The Center for African Area Studies, Kyoto University	Ethiopia
2017	Regional Resilience Enhancement through Establishment of Area-BCM at Industry Complexes in Thailand	Prof. WATANABE Kenji	Graduate School of Engineering, Nagoya Institute of Technology	Thailand
2016	Project for Evaluation and Mitigation of Seismic Risk for Composite Masonry Buildings in Bhutan	Prof. AOKI Takayoshi	Graduate School of Design and Architecture, Nagoya City University	Bhutan
	Development of Extreme Weather Monitoring and Information Sharing System in the Philippines	Prof. TAKAHASHI Yukihiro	Faculty of Science, Hokkaido University	Philippines
2015	Hazard Assessment of Large Earthquakes and Tsunamis in the Mexican Pacific Coast for Disaster Mitigation	Associate Prof. ITO Yoshihiro	Disaster Prevention Research Institute, Kyoto University	Mexico
	Integrated Research on Great Earthquakes and Disaster Mitigation in Nepal Himalaya	Emeritus Prof. KOKETSU Kazuki	The University of Tokyo	Nepal
	Technical Development to Upgrade Structural Integrity of Buildings in Densely Populated Urban Areas and its Strategic Implementation towards Resilient Cities	Prof. NAKANO Yoshiaki	Institute of Industrial Science, The University of Tokyo	Bangladesh
2014	Application of State of the Art Technologies to Strengthen Research and Response to Seismic, Volcanic and Tsunami Events, and Enhance Risk Management	Prof. KUMAGAI Hiroyuki	Graduate School of Environmental Studies, Nagoya University	Colombia
	Development of a Comprehensive Disaster Resilience System and Collaboration Platform in Myanmar	Prof. / Director MEGURO Kimiro	International Center for Urban Safety Engineering, Institute of Industrial Science, The University of Tokyo	Myanmar
2013	Integrated Study on Mitigation of Multimodal Disasters caused by Ejection of Volcanic Products	Prof. IGUCHI Masato	Sakurajima Volcano Research Center, Disaster Prevention Research Institute, Kyoto University	Indonesia
	Research Project on Disaster Prevention/Mitigation Measures against Floods and Storm Surges in Bangladesh	Prof. / Director NAKAGAWA Hajime	Research Center for Fluvial and Coastal Disasters, Disaster Prevention Research Institute, Kyoto University	Bangladesh
2012	Earthquake and Tsunami Disaster Mitigation in the Marmara Region and Disaster Education in Türkiye	Principal Research Scientist, Dr. KANEDA Yoshiyuki	Japan Agency for Marine-Earth Science and Technology	Türkiye
2011	Development of Landslide Risk Assessment Technology along Transport Arteries in Viet Nam	Executive Director, Dr. SASSA Kyoji	International Consortium on Landslides (ICL)	VietNam
	Research Project on Enhancement of Technology to Develop Tsunami-resilient Community	Deputy Director-General, Managing Director, Dr. TOMITA Takashi	Asia-Pacific Center for Coastal Disaster Research, Port and Airport Research Institute	Chile
2010	Magmatic Fluid Supply into Lakes Nyos and Monoun, and Mitigation of Natural Disasters through Capacity Building in Cameroon	Prof. OHBA Takeshi	School of Science, Tokai University	Cameroon
	Research and Development for Reducing Geo-Hazard Damage in Malaysia caused by Landslide and Flood	Prof. TOSAKA Hiroyuki	Graduate School of Engineering, The University of Tokyo	Malaysia
2009	Enhancement of Earthquake and Volcano Monitoring and Effective Utilization of Disaster Mitigation Information in the Philippines	Principal Senior Researcher, Dr. INOUE Hiroshi	Disaster Risk Research Unit, National Research Institute for Earth Science and Disaster Prevention	Philippines
	Observational Studies in South African Mines to Mitigate Seismic Risks	Prof. OGASAWARA Hiroshi	College of Science and Engineering, Ritsumeikan University	South Africa
	Information Network for Natural Disaster Mitigation and Recovery in India	Prof. MURAI Jun	Faculty of Environment and Information Studies, Keio University	India
	Project for Enhancement of Earthquake and Tsunami Disaster Mitigation Technology in Peru	Prof. YAMAZAKI Fumio	Graduate School of Engineering, Chiba University	Peru
2008	Multi-disciplinary Hazard Reduction from Earthquakes and Volcanoes in Indonesia	Prof. SATAKE Kenji	Earthquake Research Institute, The University of Tokyo	Indonesia
	The Study on GLOFs (Glacial Lake Outburst Floods) in the Bhutan Himalayas	Prof. NISHIMURA Kouichi	Graduate School of Environmental Studies, Nagoya University	Bhutan
	Project on Risk Identification and Land-use Planning for Disaster Mitigation of Landslides and Floods in Croatia	Director, Prof. MARUI Hideaki	Research Institute for Natural Hazards & Disaster Recovery, Niigata University	Croatia

Infectious Diseases Control	2019	Interdisciplinary Research for an Integrated Community-directed Strategy for Sustainable Freedom from Malaria	Specially Appointed Prof. KANEKO Akira	Graduate School of Medicine, Osaka Metropolitan University	Kenya
		Control of Tuberculosis and Glanders	Prof. KIMURA Takashi	Faculty of Veterinary Medicine, Hokkaido University	Mongolia
	2018	Establishment of the "Bench-to-Bedside" Feedback System for Sustainable ART and the Prevention of New HIV Transmission in Vietnam	Director-Emeritus OKA Shinichi	AIDS Clinical Center, National Center for Global Health and Medicine	VietNam
		Epidemiology of Zoonotic Virus Infections in Africa	Prof. TAKADA Ayato	Division of Global Epidemiology, Research Center for Zoonosis Control, Hokkaido University	Zambia / DR Congo
	2017	Integrated Research and Develomment Towards Chagas Disease Control	Prof. SHIMADA Junko	Department of Molecular and Cellular Parasitology, School of Health Sciences, Gunma University	El Salvador
		The Establishment of the One Health Prevention and Treatment Network Model for the Elimination of Rabies in the Philippines	Prof. NISHIZONO Akira	Department of microbiology, Faculty of Medicine, Oita University	Philippines
	2016	Establishment of a Research and Reference Collaborative System for the Diagnoses of Fungal Infections including Drug-Resistant Ones both in Brazil and Japan	Associate Prof. WATANABE Akira	Medical Mycology Research Center, Chiba University	Brazil
	2015	Surveillance and Laboratory Support for Emerging Pathogens of Public Health Importance	Specially Appointed Prof. KIYONO Hiroshi	The Institute of Medical Science, The University of Tokyo	Ghana
		Establishment of Laboratory Surveillance System for Viral Diseases of Public Health Concern	Prof. YASUDA Jiro	Institute of Tropical Medicine, Nagasaki University	Gabon
	2014	Integrative Application of Human and Pathogen Genomic Information for Tuberculosis Control	Prof. TOKUNAGA Katsushi	Graduate School of Medicine, The University of Tokyo	Thailand
		Searching Lead Compounds of Anti-malarial and Anti-amebic Agents by Utilizing Diversity of Indonesian Bio-resources	Prof. NOZAKI Tomoyoshi	Graduate School of Medicine and Faculty of Medicine, The University of Tokyo	Indonesia
		Ecological Studies on Flying Foxes and Their Involvement in Rabies-related and Other Viral Infectious Diseases	Prof. HONDO Eiichi	Graduate School of Bioagricultural Sciences, Nagoya University	Indonesia
	2013	Epidemiological Studies on Animal Protozoan Diseases in Mongolia and Development of Effective Diagnostics Measures	Prof. YOKOYAMA Naoaki	Obihiro University of Agriculture and Veterinary Medicine	Mongolia
		Development of Innovative Research Technique in Genetic Epidemiology of Malaria and Other Parasitic Diseases in Lao PDR for Containment of Their Expanding Endemicity	Director, Dr. KANO Shigeyuki	Department of Tropical Medicine and Malaria, Research Institute, National Center for Global Health and Medicine	Laos
		Establishment of an Early-warning System for Infectious Diseases in Southern Africa Incorporating Climate Predictions	Prof. MINAKAWA Noboru	Institute of Tropical Medicine, Nagasaki University	South Africa
	2012	Surveillance of Viral Zoonoses in Africa	Prof. TAKADA Ayato	Research Center for Zoonosis Control, Hokkaido University	Zambia
	2011	Comprehensive Etiological and Epidemiological Study on Acute Respiratory Infections in Children: Providing Evidence for the Prevention and Control of Childhood Pneumonia in the Philippines	Prof. OSHITANI Hitoshi	Graduate School of Medicine, Tohoku University	Philippines
		Determine the Outbreak Mechanisms and Development of a Surveillance Model for Multi-Drug Resistant Bacteria	Guest Prof. YAMAMOTO Yoshimasa	Osaka University Graduate School of Pharmaceutical Sciences	VietNam
		Development of Rapid Diagnostics and the Establishment of an Alert System for Outbreaks of Yellow Fever and Rift Valley Fever in Kenya	Prof. MORITA Kouichi	Institute of Tropical Medicine, Nagasaki University	Kenya
	2010	Research and Development of Prevention and Diagnosis for Neglected Tropical Diseases, especially Kala-Azar	Associate Prof. NOIRI Eisei	The University of Tokyo Hospital	Bangladesh
	2009	The Project for New Diagnostic Approaches in the Management of Fungal Infections in AIDS and Other Immunocompromised Patients	Prof. KAMEI Katsuhiko	Medical Mycology Research Center (MMRC), Chiba University	Brazil
		Identification of Anti-Hepatitis C Virus (HCV) Substances and Development of HCV and Dengue Vaccines	Prof. HOTTA Hak	Graduate School of Medicine/ School of Medicine, Kobe University	Indonesia
		The Studies of Anti-viral and Anti-parasitic Compounds from Selected Ghanaian Medicinal Plants	Prof. YAMAOKA Shoji	Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University	Ghana
		Prevention and Control of Leptospirosis in the Philippines	Prof. YOSHIDA Shin-ichi	Faculty of Medicine Sciences, Kyushu University	Philippines
	2008	Research and Development of Therapeutic Products against Infectious Diseases, especially Dengue Virus Infection	Prof. IKUTA Kazuyoshi	Research Institute for Microbial Diseases, Osaka University	Thailand
		Establishment of Rapid Diagnostic Tools for Tuberculosis and Trypanosomiasis and Screening of Candidate Compounds for Trypanosomiasis	Prof. SUZUKI Yasuhiko	Research Center for Zoonosis Control, Hokkaido University	Zambia

*The affiliation and position of the principal investigators are as of the end of the project

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