Planetary Health

for Planetary Health, NU

Nagasaki University's Vision for the Future of the Planet

Planetary Health

Three Approaches Toward Becoming a Center of Planetary Health Education and Research as Envisioned by Nagasaki University

Global Health

Vaccine Development and International Health

Institute of Tropical Medicine
National Research Center for the Control and Prevention of Infectious Diseases
School of Tropical Medicine and Global Health
School of Global Humanities and Social Sciences
Faculty of Economics
Faculty of Education

Academia Drug Discovery

Center for Medical Innovation
School of Pharmaceutical Sciences
School of Engineering
Faculty of Environmental Science
University Hospital

Medical Engineering Collaboration and Satellite Communications

School of Medicine
School of Dentistry
School of Engineering
School of Information and Data Sciences

Global Risk

Radiation Medical Sciences

Faculty of Environmental Science
Chernobyl・Fukushima Research Station

Nuclear Weapons Abolition Research

School of Global Humanities and Social Sciences
Faculty of Economics
Faculty of Education

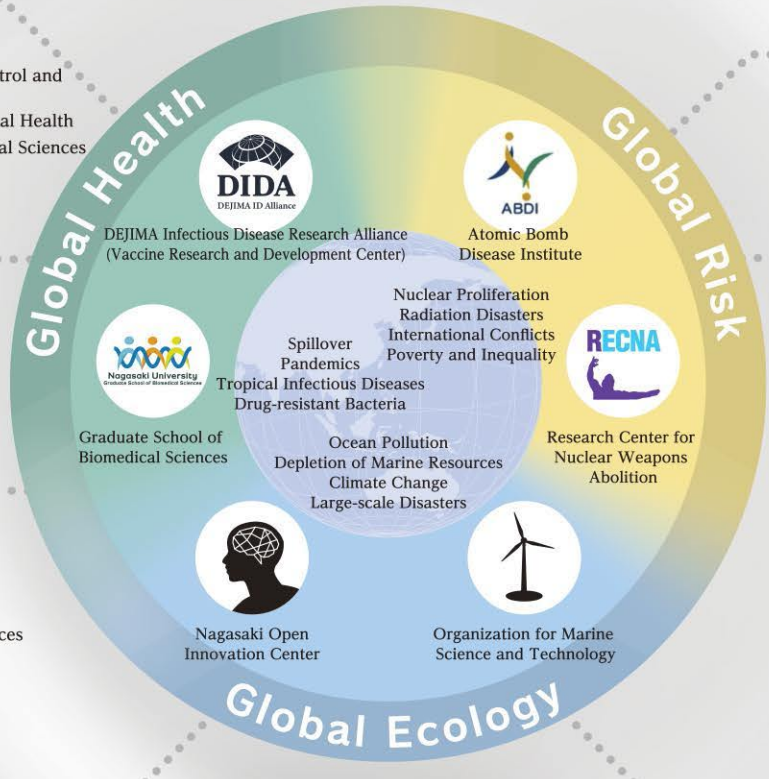
Global Ecology

AI, IoT, and Robots

School of Information and Data Sciences
School of Engineering

Marine Aquaculture + Renewable Energy

Faculty of Fisheries
School of Engineering
Faculty of Environmental Science



Global Health

Going beyond borders to tackle global health and medical issues

DEJIMA Infectious Disease Research Alliance (DIDA)

Nagasaki University has established a range of institutions and organizations dedicated to infectious disease research and education, including the Institute of Tropical Medicine, the National Research Center for the Control and Prevention of Infectious Diseases, the School of Tropical Medicine and Global Health, the Graduate School of Biomedical Sciences, and the University Hospital. To maximize the impact and value of these entities through integrated coordination, the University launched the DEJIMA Infectious Disease Research Alliance. This initiative not only contributes to strengthening Japan's infectious disease research capacity, but also fosters the next generation of researchers with a broad academic perspective. Furthermore, Nagasaki University is preparing for the full-scale operation of Japan's first suit-type BSL-4 facility. By utilizing this cutting-edge facility, the university aims to establish a system capable of rapidly developing treatments and vaccines for infectious diseases that are spreading globally.

DIDA: A Nagasaki University-wide Collaboration Framework

Nagasaki University Hospital

In April 2023, Nagasaki University Hospital was designated by the Japanese government as a Clinical Research Core Hospital. As a leading hub for clinical research in Japan, the hospital conducts clinical studies and investigator-initiated trials, contributing to the advancement of medical science. As Nagasaki Prefecture has the largest number of remote islands in Japan, Nagasaki University is working to establish a fast and reliable communication infrastructure using local 5G networks to begin support for long-distance consultations by medical specialists. In this way, the university aims to lead the way in pioneering regional healthcare. The International Medical Center contributes to the advancement of global health policies and healthcare systems by (1) providing medical care for non-Japanese patients, (2) promoting the export of medical skills and technology, (3) engaging in international medical cooperation, and (4) hosting training programs for healthcare professionals from overseas.

Overseas Research Centers Focused on Infectious Diseases

Nagasaki University has established overseas research centers focused on infectious diseases in Kenya, Vietnam, and Brazil. Each center operates in close collaboration with leading public health and medical research institutes in their host countries, promoting projects that support disease prevention and control, the development of healthcare systems, and the improvement of community health. In recognition of these efforts, Nagasaki University has received the Ambassador's Commendation from the Embassy of Japan in Kenya and the Foreign Minister's Commendation in Vietnam. With the launch of its new research center in Brazil in 2023, the university has strengthened its global framework to rapidly detect infectious disease trends and advance research, continuing its mission to contribute to improving global health and medicine.

A community meeting on malaria prevention in Kenya

Global Risk

Analyzing risks from multiple perspectives to gain insight into problem-solving processes

Research Center for Nuclear Weapons Abolition (RECNA)

Nagasaki University retains its the legacy of being the world's only medical university affected by an atomic bombing. The Research Center for Nuclear Weapons Abolition (RECNA) was established at Nagasaki University as an unprecedented educational and research hub dedicated to nuclear disarmament. Since its founding, RECNA has continued academic research on global nuclear issues and has shared knowledge and policy proposals with the international community to promote nuclear disarmament and the abolition of nuclear weapons. It also emphasizes cultivating highly specialized professionals and fostering students with broad perspectives and a strong sense of initiative. RECNA also collaborates with Nagasaki Prefecture, Nagasaki City, and civil society to explore pathways toward realizing "our dream of a world free from nuclear weapons"and to "make Nagasaki the last site of an atomic bombing."

The second session of the public lecture series "Abolition of Nuclear Weapons: Toward a World Without Nuclear Weapons" was held on July 6, 2024, under the titled "The Advancing Arms Race: Insights from the Nuclear Warhead Poster."

Research Center for Global Risk (CGR)

CGR Kickoff Symposium Highlights (December 21, 2024)

Risks such as climate change, nuclear threats, infectious diseases, military conflicts, and social fragmentation transcend national and regional boundaries. These risks are also interconnected, often compounding and triggering one another in complex and multilayered ways. The Research Center for Global Risk (CGR) serves as a collaborative platform that brings together expertise across academic disciplines to address such risks and explore effective solutions. Working in collaboration with research institutions both in Japan and around the world, the center conducts interdisciplinary research on global-scale risks that threaten humanity. In addition to issuing policy proposals to the international community, CGR is also committed to fostering the next generation of researchers, policymakers, and global leaders.

Research and Support Center for the Future of Fukushima

The Research and Support Center for the Future of Fukushima was established to help shape a future for the affected area through comprehensive and concrete support, in response to the unprecedented compound disaster caused by the earthquake, tsunami, and nuclear power plant accident. Currently, reconstruction support hubs have been established in Kawauchi Village, the towns of Tomioka, Okuma, and Futaba, with staff permanently stationed at each location. Drawing on its experience in providing medical care for atomic bomb survivors and conducting post-accident studies following the Chernobyl nuclear disaster, the center promotes radiation risk communication based on scientific evidence, supports educational initiatives for children, and provides training for medical professionals and personnel in health and welfare services. The center also collaborates with many international organizations to update people on the current situation in Fukushima and share the lessons learned from the compound disaster.

A seminar for students in Hamadori, Fukushima (in front of the Great East Japan Earthquake and Nuclear Disaster Memorial Museum)

Global Ecology

Combining interdisciplinary knowledge to explore solutions to sustainability and living in harmony with the environment

NAGASAKI BLUE ECONOMY

The NAGASAKI BLUE ECONOMY Project aims to establish a vibrant regional hub by enabling sustainable aquaculture-based food production through innovative technologies, creating jobs, and encouraging young people to settle in the area. To this end, the project involves research and development in various fields. This includes submersible fish cages necessary for offshore aquaculture, fully closed-cycle yellowtail farming technology using hatchery-produced juveniles for potential export under the "JAPAN" brand, AI-powered automatic feeding systems and underwater data communication technologies, and health monitoring technologies for fish. The project also incorporates interdisciplinary approaches such as fisheries science, marine engineering, information and data science, environmental science, and social sciences, as well as the technologies and expertise of partner companies.

Juvenile Yellowtail Rearing Tank at the Takashima Fisheries Research Institute

High-Precision Quantification and Evaluation of Blue Carbon Sequestration in Seaweed Aquaculture Sites

Seaweed is thought to be extremely effective in removing carbon dioxide from the atmosphere, and seaweed aquaculture is gaining attention as a potential solution to global warming. However, few prior studies quantitatively evaluate the net carbon uptake in seaweed beds or aquaculture sites. Specifically, limited research has been done to calculate the net carbon uptake by subtracting the amount of respiration products produced by seaweed from the amount of their photosynthesis products. As a result, some have questioned the actual effectiveness of seaweed in carbon removal. In response, Nagasaki University has launched a research initiative to comprehensively evaluate CO_2 absorption and sequestration in seaweed aquaculture sites from multiple perspectives. This research is expected to contribute to carbon neutrality in the seaweed aquaculture industry and enable high-precision quantification of blue carbon credits, thereby supporting global warming mitigation efforts.

We aim to develop techniques for collecting sediment from the sea floor beneath wakame aquaculture sites in Matsushima Bay, Miyagi Prefecture, and analyzing the organic carbon it contains.

Note: This research was selected under the Strategic Basic Research Program (CREST) of the Japan Science and Technology Agency (JST).

Research and Development in Marine Energy

As the lead institution of the "Industry-Academia Consortium for Higher Education Program on Offshore Wind (IACOW)," composed of seven universities and ten power generation companies, Nagasaki University is taking the lead in developing educational systems and curricula in close collaboration with industry. In partnership with universities across Japan engaged in wind farm research and development, our university is also cultivating the next generation of professionals. We have developed a high-efficiency turbine capable of rotating even in weak tidal currents using artificial intelligence, and have implemented it as a smart buoy that enables continuous remote monitoring at sea. This technology is gaining attention as a solution for securing reliable power in offshore aquaculture and other hard-to-access environments. Our university is also working closely with industry to drive the development of the marine energy sector.

Training at an offshore wind power facility (Levenmouth, Scotland)

Note: "Nagasaki BLUE Economy" and "Tidal Power Generation" are supported by JST's COI-NEXT Program.

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