



# United Nations University (UNU)—The United Nations University: Research and Policy Support for Environmental Risk Reduction

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## Abstract

The United Nations University (UNU) was established in 1973 in Tokyo, Japan, as the academic arm of the United Nations. In its role as a think tank for the UN system it engages in policy-relevant research to generate science-based knowledge and solutions to urgent global challenges across a variety of comprehensive themes. UNU's research focuses on three broad thematic clusters: Peace and Governance, Global Development and Inclusion as well as Environment, Climate and Energy. In addition, research is complemented by important themes in science, technology and innovation. Research is carried out by a global network of institutes and programmes (see Fig. 1), each with a specific thematic focus. This paper provides an overview of United Nations University, with particular attention to one of its institutes, namely the Institute for Environment and Human Security (UNU-EHS) in Bonn, Germany.

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## Keywords

United Nations University • Global think tank • Research and education • Policy • Global development • UNU-EHS • Environment • Human security • Risk

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## The UNU: Founding and Conception

The United Nations University (UNU) functions as a global think tank engaged in research, postgraduate teaching and the dissemination of knowledge that is aimed at furthering the purposes and principles of the United Nations Charter. Following the proposition by United Nations Secretary-General U Thant in his 1969 Annual Report that a “United Nations University, truly international in character and devoted to the Charter objectives of peace and progress” be created, the UNU was founded as the academic arm of the United Nations in 1973.

Headquartered in Tokyo, Japan, the mission of the UNU is centrally defined by its effort to “contribute, through collaborative research and education, dissemination, and

advisory services, to efforts to resolve the pressing global problems of human survival, development and welfare that are the concern of the United Nations, its Peoples and Member States” (cited in UNU Strategic Plan 2015–2019). In carrying out this mission, the UNU works with leading universities and research institutes in UN Member States, functioning as a bridge between the international academic community and the United Nations system.

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## UNU Research and Objectives

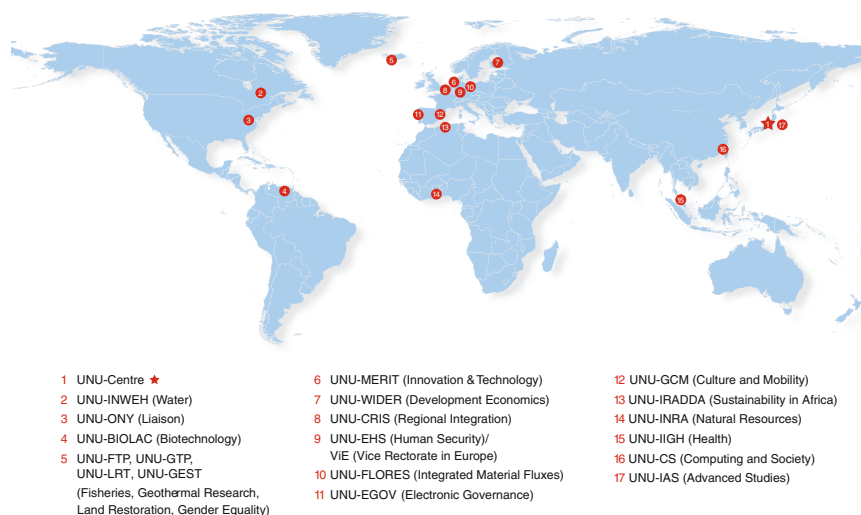
### Overview

In its role as a think tank for the United Nations system, the UNU conducts focused, policy-relevant research that offers objective, science-based perspectives in the service of policy debate and development. UNU researchers aim to develop innovative approaches to today's pressing problems, to

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**Fig. 1** The Global UNU Campus

provide proactive analyses of emergent challenges, and to propose feasible coping mechanisms and solutions. Guided by the UNU Strategic Plan, which prescribes the basic direction, agenda, and priorities of this research, UNU produces evidence-based, policy-relevant research outcomes that seek to contribute to the UN policymakers' toolkit and inform deliberations on key policy issues.

## Research Agenda and Strategy

Following its Charter mandate, the UNU investigates various aspects of global sustainability and human well-being, with a particular emphasis on the challenges and needs of developing countries. This encompasses issues of peace and human security, governance and human rights, human health, gender equality, development and poverty reduction, environmental protection and natural resources management, climate change, energy, the impact of science and technology, and other important contemporary concerns.

The focus of UNU's research has continually evolved in response to the changing state of global ecosystems, the social impact of scientific discoveries, and the evolution of the international system. UNU aims to maintain the high quality of its outputs by focusing its research activities into specified thematic areas. The three overarching thematic clusters prescribed by the *UNU Strategic Plan 2015–2019* are:

- Peace and Governance;
- Global Development and Inclusion;
- Environment, Climate and Energy.

These clusters incorporate gender dimensions, and are complemented by relevant, cross-cutting research themes in the areas of science, technology, and innovation.

## A 'Truly International University'

The work and research of UNU is carried out by a decentralized network of institutes and programmes spread across a range of international sites. The researchers across UNU's varied units collaborate with each other and diverse external partners such as leading universities and research centers, think tanks and other UN entities, to more effectively respond to the range of today's multifaceted global challenges.

As Fig. 1 illustrates, UNU's campus spans a range of countries and world regions. With its headquarters in Tokyo and its Vice-Rectorate for Europe located in Bonn, Germany (the only establishment of this kind outside Japan), the UNU continues to pursue partnerships and the establishment of UNU sites in developing countries.

Comprising a total of ca. 650 staff and personnel members in 2015, the UNU is characterised by a diversity of institutional approaches across its global sites. Thus, while some institutes strive to build capacity from within, and therefore emphasize internally conceived projects, others place a stronger focus on external proposals. Although the majority of UNU projects comprise a small team of researchers (who collaborate across UNU's diverse sites), externally proposed and financed projects occasionally involve multiple institutions and large networks of researchers.

## Dissemination

UNU disseminates the findings of its research through a variety of channels: these include books, reports, policy briefs, journal articles, and the internet as well as conferences, seminars, lectures, and workshops. The goal is to provide practical knowledge, in a timely manner and convenient form, to those who can make best use of it. Target audiences include UN officials, government leaders, scientists, scholars, public and private sector decision-makers, and on-the-ground practitioners.

## UNU's Educational Focus

Beyond its research and investigative work, educational programmes pose a centrepiece of UNU's work as the academic arm of the United Nations. UNU has established and institutionalised a number of master's programmes and doctoral fellowships across a range of international sites. In the Netherlands, for example, the double M.Sc. programme between UNU-MERIT and Maastricht University in Public Policy and Human Development was ranked number one in the category of Political Science and Public Administration, adding to the success of that Institute's internationally renowned joint doctoral programme. In Japan, UNU has partnered with the University of Tokyo to develop a joint diploma programme M.Sc. degree aimed at training future leaders in the area of sustainability science. In Germany, the Technical University of Dresden, recently designated by the German federal and state governments as a university of excellence, is partnering with UNU-FLORES to offer an innovative joint doctoral programme on the integrated management of water, soil and waste. In Bonn, UNU has developed an entirely new, fully accredited joint M.Sc. degree programme with the University of Bonn, combining the areas of geography, environmental change, and human security. The UNU programmes in Iceland offer education and training in the areas of fisheries (UNU-FTP), geothermal energy (UNU-GTP), and soil erosion (UNU-LRT), the latter being of particular relevance to landslide problems.

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## Setting of UNU-EHS in UNU

Research on environmental risks is carried out at several UNU institutes, e.g., at the Institute for Advanced Sustainability (UNU-IAS). In the following we concentrate on the Institute for Environment and Human Security (UNU-EHS), which has environmental risks as its core mandate. UNU-EHS was established in Bonn in 2003. The institute shares its administration, information technology and communication units with the UNU Vice-Rectorate in Europe (UNU-ViE), which

also hosts the programme UNU-SCYCLE, focused on the development of sustainable production, consumption/usage, and disposal of ubiquitous goods, with a special focus on electrical and electronic equipment.

UNU-EHS is an integral part of the UNU system. It receives its core funding from the German Ministry for Education and Research and the State of Northrhine Westphalia.

## Mission and Vision of UNU-EHS

The mission of UNU-EHS is to act as a think tank for the advancement of human security and resilience through knowledge-based approaches to handle environmental risks. UNU-EHS spearheads UNU's policy-oriented research and capacity building activities in the interdisciplinary field of risk and vulnerability, including knowledge-based adaptation and resilience strategies. The institute's mission is based on the observation that worldwide:

- the occurrence of extreme sudden-onset and slow-onset anthropogenic and natural hazards is on the rise;
- due to global environmental, social, economic and political changes, an increasing number of people are exposed and becoming more vulnerable to the impacts of these hazards;
- these impacts increasingly influence development processes in a negative way.

This development is caused by a multitude of global, regional and local drivers. To mention just a few: global warming, urbanization and other migration processes, conflicts, and economic inequalities.

Two basic guiding principles form the frame of the approach UNU takes when discussing environmental risks:

- When talking about "environmental" risk, the notion "environmental" does not claim that the risks are "caused" by the (biophysical) environment, or that the environment is even the main driver. Risks always occur from an interaction of the biophysical environment and the socio-economic, cultural and political settings. It is only with this comprehensive view that risks can be discussed with the goal of formulating appropriate comprehensive solutions.
- A medium to long-term development perspective should provide the frame for the identification of risk reduction solutions and the evaluation of, possibly competing, options. Without such an underlying perspective, risk mitigation solutions are prone to be of a short term, non-sustainable nature, and may prove to become inappropriate and obsolete in the longer run.

More specifically UNU-EHS focuses on four Programmes:

- Vulnerability Assessment, Risk Management and Adaptive Planning (*VARMAP*): Methods and concepts for risk and vulnerability assessment; institutional and planning aspects of environmental risk, with particular focus on risks in rural-urban interfaces;
- Environmental Vulnerability and Ecosystem Services (*EVES*): Ecosystem aspects of environmental risks;
- Environmental Migration, Social Vulnerability and Adaptation (*EMSVA*): Impact of climate change on environmental risks;
- Education programmes (*EduSphere*).

These programmes are selective and there are several areas of environmental risks that are not covered by any of the four programmes, e.g., health aspects, which are the focus of UNU-IIGH (International Institute for Global Health) in Kuala Lumpur, Malaysia.

### Positioning in View of Global Policy Processes

The global policy agenda is characterized by at least five UN-led processes, which have all culminated in major conferences in 2015/16. These include (in chronological order):

1. Sendai Framework for Disaster Risk Reduction 2015–2030 (SFDRR)
2. Addis Ababa Action Agenda (AAAA)
3. The Agenda 2030 (Sustainable Development Goals, SDGs)
4. Paris Agreement (UNFCCC 21st Conference of the parties)
5. Outcomes of the World Humanitarian Summit.

The Sendai process and the climate negotiations are of direct thematic relevance to UNU-EHS, and the institute is involved in multiple ways. For the Sendai Framework, besides projects relevant to the process, UNU-EHS is represented in UN interagency teams for the implementation as well as in the organizing committee for scientific support processes, e.g., in the organizing committee of the *UNISDR Science and Technology Conference on the implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030*.

With regards to climate negotiations, the EMSVA programme in particular draws on a long-term collaboration with the Munich Climate Insurance Initiative (MCII), and involvements in Loss and Damage projects, science support seminars with negotiators, etc.

The Sustainable Development Goals process requires scientific support, mainly in the development of indicators and assessment and evaluation processes. A successful step has

been made, e.g., by the conference “Measuring Sustainable Development”, co-organized by UNU-ViE and the German Research Foundation (DFG) in New York in April 2015.

### UNU-EHS Programme Overview

The *VARMAP* programme develops and applies conceptual frameworks, theoretical approaches and scientific methods to assess, monitor and understand risk and vulnerability in the context of natural hazards, environmental change and societal transition. The programme explores new opportunities for risk reduction and evaluates competing adaptation options against a multi-dimensional set of criteria. In doing so, *VARMAP* examines ways to strengthen adaptive governance, i.e., the continuous adaptation of institutions which is necessary for any successful adaptation process and goes beyond the adjustment of physical infrastructure and economic practices.

The programme is particularly interested in understanding the synergies but also rifts between state and non-state action in adaptation processes and promotes integrated governance solutions. Drawing on scenario techniques and dynamic assessment tools, it examines the trends in vulnerability and adaptive capacity as societies undergo wider cultural, economic, demographic and political transformation. Analyzing the interplay between urbanization pathways and shifts in risk profiles is one of the programme’s specific areas of research.

One of the most important projects of the programme is the World Risk Index, which has been developed in cooperation with the Alliance Development Works and is published annually in the World Risk Report since 2011. The World Risk Index emphasises the view that environmental risks are not simply determined by the exposure of people and assets to hazardous environmental processes but also societal factors such as the lack of coping and adaptation capacities.

The *EVES* programme conducts research addressing the vulnerability and resilience of social-ecological systems, where the concept of ecosystem services is of central importance. Specifically, *EVES* aims to understand how social-ecological systems are affected by diverse environmental hazards such as water and land degradation, floods, and droughts, as well as how ecosystems can support disaster risk reduction and climate change adaptation. Besides original research, the programme advocates for ecosystem-based solutions, for example, through engagement in the Partnership for Environment and Disaster Risk Reduction (PEDRR). *EVES* collaborates with other UN entities including UNEP, UN-WATER, UNESCO, and the UN Country Team in Indonesia and develops research-based policy recommendations to inform governments around the world.

The *EMSVA* programme undertakes research on how society manages climate-related stresses such as floods, droughts, storms, sea level rise, and climatic shifts. The

programme works with governments, the private sector, and civil society to identify and design innovative climate risk management solutions to build resilience. Specific themes of adaptation-related research include (1) human mobility, (2) livelihood resilience, (3) loss and damage, and legal dimensions of global environmental change, and (4) comprehensive climate risk management including insurance approaches, the latter within the Munich Climate Insurance Initiative (MCII).

The *EduSphere* programme addresses the activities of UNU-EHS with respect to enhancing the educational capabilities of its partner institutions in developing and transitional countries. The programme has developed a range of modular education activities, always with a strong focus on creating new partnerships. The flagship among these programmes is the Joint Master of Science “The Geography of Environmental Risks and Human Security”, together with the University of Bonn.

After its successful start in October 2013, the programme developed an ‘Integrative Modular Education Framework’ consisting of the following different educational components offered at UNU-EHS: M.Sc. programme, collaborative Ph.D. programme, affiliated degree programme, non-degree courses and Technology enhanced learning (e-Learning).

The two-year master's programme educates students in an interdisciplinary and transdisciplinary manner on how to investigate and manage various resources related to environmental hazards by implementing science-based principles and methodologies to disaster risk management.

Finally, the research in many of UNU-EHS’ projects is carried out within Ph.D. theses work. While EHS secures the funding, defines the research plan, and provides the scientific supervision, it does not grant the Ph.D. degree itself.

All Ph.D. theses are carried out in partnership with a degree-granting partner university.

## Concluding Remarks

Environmental risks will be an area of increasing concern in the future. The main drivers are not only environmental processes per se, but also the socio-economic systems which interact with environmental processes. A successful management of environmental risks needs to be based on integral development planning. This intimate connection is taken into account in all research projects of UNU and also by a comprehensive approach to education and training.

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