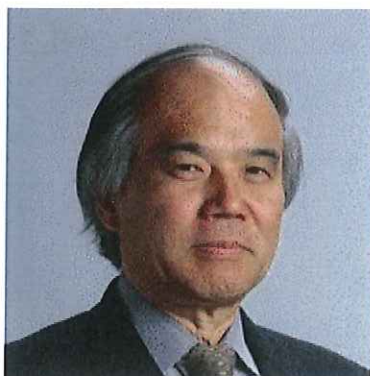


Opening Remarks  
開会式



Takashi ONISHI, Professor  
大西 隆

President, Science Council of Japan  
Emeritus Professor, The University of Tokyo  
President, Toyohashi University of Technology

日本学術会議会長  
東京大学名誉教授  
豊橋技術科学大学学長

**Academic background**

Doctor of Engineering, Urban Engineering, The University of Tokyo, Japan

**Professional focus**

Evaluation for National Land Planning / Regional and Social Planning, Asian Urbanization, Teleworking Promotion of the Low-Carbon Cities, National Disaster Management

**最終学歴：**

東京大学大学院工学系研究科博士課程 修了（都市工学専攻）

**研究歴：**

国土計画・地域計画の作成と評価論  
アジア都市論 テレワーク論 低炭素都市論 国土防災論



Margareta Wahlström

Special Representative of the United Nations Secretary-General (SRSG) for  
Disaster Risk Reduction  
Chief, United Nations Office for Disaster Risk Reduction (UNISDR)

**Academic background**

Economic history, political science, social anthropology, archaeology and philosophy of science.

**Professional focus**

Disaster relief operations and disaster risk management, with the United Nations system and the International Federation of Red Cross and Red Crescent Societies; conflict and non-conflict emergencies, and addressing long-term issues of sustainable development.

## Opening Remarks 開会式



## David Johnston, Professor

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Director of the Joint Centre for Disaster Research, Massey University / GNS Science

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### Academic background

MSc. (Hons), Volcanology, University of Canterbury, New Zealand  
PhD., Disaster Management, Massey University, New Zealand

### Professional focus

Research focuses on human responses to volcano, tsunami, earthquake and weather warnings; crisis decision-making; and the role of public education and participation in building community resilience and recovery.



## Junichi Hamada, Professor

濱田 純一

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President, The University of Tokyo

東京大学総長

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### Academic background

B.A., Law, The University of Tokyo, Japan  
M.A., Law, The University of Tokyo, Japan  
Ph.D., Law, The University of Tokyo, Japan

### Professional focus

Information Law and Policy

### 学歴：

東京大学法学部第二類（公法コース）卒業  
東京大学大学院法学政治学研究科公法専門課程修士課程 修了  
東京大学大学院法学政治学研究科公法専門課程博士課程 修了

### 専門

情報法、情報政策

**Keynote Speech**  
 基調講演


## Han Seung-soo, Dr.

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UN Secretary-General's Special Envoy on Disaster Risk Reduction and Water  
 Former Prime Minister, Republic of Korea  
 Nobel Peace Prize Laureate on behalf of the United Nations in 2001

### Academic background

Master of Public Administration, Seoul University, Republic of Korea

PhD., University of York, UK

Honorary Degrees at the University of York, UK, University of Gangwon, Yonsei University and KAIST, Republic of Korea, and University of Kuala Lumpur, Malaysia

### Professional focus

Member of the UN Secretary-General's Advisory Board on Water and Sanitation (UNSGAB), Founding Chair of High-Level Experts and Leaders Panel on Water and Disasters (HELP) and Co-chair of ADB's Water Advisory Group. He was Special Envoy of the UN Secretary-General on Climate Change (2007-08), Member of the UN Secretary-General's High-Level Panel on Global Sustainability (GSP) (2010-12), Founding Chair of Global Green Growth Institute (GGGI) (2010-12) and Chair of the 2009 OECD Ministerial Council Meeting in Paris where the resolution of Declaration on Green Growth was unanimously adopted on 25 June 2009.

### Keynote Speech Abstract

As pointed out by the recent IPCC 5th Assessment Report in April, 2014, disaster risk has been increasing due to the greenhouse gas emissions at the global level. Developing countries are more vulnerable than developed countries in terms of human and economic losses and therefore the special attention should be paid more to these countries.

The Hyogo Framework for Action (HFA) was launched in 2005 as a major step to achieve disaster risk reduction (DRR). There have been numerous achievements since the launch of HFA. These achievements have been possible, to some extent, thanks to the contribution of science and technology. Nevertheless, the Mid-Term Review of HFA in 2011 indicated that there were unmet demands for science and technology inputs. Therefore, policy makers should endeavor to abolish the barriers to the access to and transfer of science and technology and to support the development of technical capacities, particularly in the developing countries.

Science and technology can accelerate progress in human development. Science and technology facilitates the new insights and methods, establish higher standards and improve evidence-based policies. Social and natural sciences contribute to educating people for good decision-making and cost-effective implementation. However, there are prerequisites to development of science and technology and these are active leadership, support and coordination at both national and international levels.

More emphasis should be placed on continuous commitments of the international community for supporting science and technology for DRR.

In this context, the UN Secretary-General's Advisory Board on Water and Sanitation (UNSGAB) has already established the Hashimoto Action Plan, and the High-Level Experts and Leaders Panel on Water and Disaster (HELP) Action Plan on SDGs has been prepared. The Asian Development Bank has recently set up the high-level Water Advisory Group for providing guidance. The group will help ADB to improve disaster-related science and technology, facilitate sharing knowledge, and advise ADB on the strategic direction of its operations.

Action for DRR is an investment for the future and climate change adaptation. In order to proceed for the next phase of HFA, the role of science and technology is of great importance. The key to success of DRR requires an international agreement on the development of DRR monitoring and assessment technology, and knowledge and technology sharing and transfer between developed and developing countries. Such agendas should be thoroughly discussed on the occasion of the 3rd World Conference on Disaster Risk Reduction in Sendai in March 2015.

## Keynote Speech 基調講演



## Gordon McBean, Professor, CM, O.Ont, PhD, FRSC

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President, International Council for Science  
Professor, Institute for Catastrophic Loss Reduction, Western University  
President of START International (capacity enhancement in Africa and Asia)  
Fellow of the Royal Society of Canada

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### Academic background

B.Sc. Physics

PhD. Physics and Oceanography

### Professional focus

Disaster risk reduction and climate change science and policy and their integration across national and international domains.

### Keynote Speech Abstract

#### Integrated Research to Reduce Risk and Sustain Development

Planet Earth is facing challenges of increasing numbers of hazards creating disasters and impacting on people and property and limiting development. The issues of disaster risk reduction, sustainable development goals and climate change mitigation and adaptation are key global issues being addressed through international processes in 2015. It is important that internationally coordinated research, through programs such as Integrated Research on Disaster Risk, Future Earth: Research for Global Sustainability and Health and Wellbeing in the Changing Urban Environment, be supported and their research coordinated so the outputs are effective in policy development and can be used by all countries. This challenge is for the scientific community, working with stakeholder communities, will be effectively addressed through coordination and cooperation across nations, international organizations and scientific disciplines.



## Anisul Islam Mahmud, MP

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Hon'ble Minister, Ministry of Water Resources

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### Academic background

B.A. (Honours), Economics, Dhaka University, Bangladesh

M. Sc., Economics, Quaide Azam University, Pakistan

M.A., Economics, Essex University, UK

### Professional focus

Mr. Mahmud has been elected as a Member of Parliament in the 10th National Parliamentary Election in 2014. He took oath as a Cabinet Minister on the 12th January 2014 and has been awarded the portfolio of the Ministry of Water Resources, Government of the People's Republic of Bangladesh.



## Vivi Stavrou

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Senior Executive Manager, International Social Science Council

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### Academic background

Masters of Social Science, Clinical Psychology, University of KwaZulu-Natal, South Africa

### Professional focus

Social development work and clinical psychology. Working as a researcher, evaluator and consultant in the areas of risk reduction and response related to humanitarian emergencies, child protection, psychosocial programming, mental health and Human Rights and public health.



## Jeremiah R.D. Lengoasa

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Deputy Secretary-General of WMO

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### Academic background

M.Sc., Geography – Climatology, Witwatersrand University, South Africa  
M.A., Public and Development Management, Witwatersrand University, South Africa  
Honorary Degree in Geography from the Fort Hare University

### Professional focus

He served in the South African public service in Environment, Environmental Regulations, and Environmental Quality and Protection, followed by a period in financial sector as Senior Manager. Mr Lengoasa was for several years a teacher and a university senior lecturer in Geography, environmental studies and atmospheric sciences.



## Flavia Schlegel, Dr.

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Assistant Director-General for the Natural Sciences, UNESCO

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### Academic background

Medical Doctorate, University of Zurich, Switzerland  
M.A., Organizational Development, University of Klagenfurt, Austria

### Professional focus

Health Science Governance and Public Management dealing with international cooperation and relations, strategy and project development and change and diversity management.



## Rolf Alter, Dr.

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Director, Public Governance and Territorial Development, OECD  
Member of the Global Agenda Council of the World Economic Forum

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### Academic background

Doctorate Degree in Economy, the University of Goettingen, Germany

### Professional focus

Supporting governments in order to improve their public sector performance for the well-being of citizens and the competitiveness of their economies. Key areas include institutional reform, risk management, innovation, transparency and integrity in the public sector, results-oriented budgeting, regulatory reform, and the economics of regions and cities. Establishment of the OECD High-Level Risk Forum to provide policy makers and senior executives in the public and private sectors with a collaborative platform in a view to improve preparation for large scale shocks to the economy and society.



## Ede Jorge Ijjász Vásquez, Dr.

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Senior Director for the Social, Urban, Rural and Resilience Global Practice at  
the World Bank Group

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### Academic background

Ph.D. and M.Sc., Civil and environmental engineering, with specialization in hydrology and water resources, Massachusetts Institute of Technology (MIT), USA

### Professional focus

Leveraging global knowledge and collaborating with partners to help tackle the world's most complex development challenges in: (i) social inclusion and sustainability; (ii) mainstreaming resilience in all dimensions development; (iii) territorial and rural development; and (iv) urban planning, services and institutions.



## Bindu N. Lohani, Dr.

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Vice-President, Knowledge Management and Sustainable Development,  
Asian Development Bank

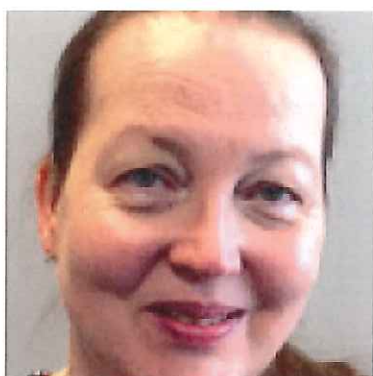
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### Academic background

Bachelor's Degree, Civil Engineering  
Master's degree and Doctoral degrees, Environmental Engineering.

### Professional focus

He has held several positions, including Director General of the ADB's Regional and Sustainable Development Department (responsible for sectoral and thematic areas like energy, transport, water, urban development, environment, disaster risk management and governance) and Special Advisor to the President on Clean Energy, Climate Change and Environment. In his 25 years in ADB, he had worked in various capacities mostly infrastructure and sustainable development. He is a diplomat of the American Academy of Environmental Engineers and is a licensed professional engineer.



## Sari Söderström Feyzioglu

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Senior Director for the Social, Urban, Rural and Resilience Global Practice at  
the World Bank Group

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### Academic background

Master degree, Economics, University of Stockholm, Sweden

### Professional focus

Ms. Söderström leads the Practice's engagement in territorial and rural development, and sustainable land management – an increasingly important part of the Bank Group's work in sustainable development. Before this, she was the Senior Manager for the Bank's Africa Sustainable Development Department, with 420 staff and an overall portfolio of about 250 projects.





## Shigeru Kiyama

### 木山 繁

Vice President, Japan International Cooperation Agency (JICA)

国際協力機構（JICA）理事

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#### Academic background

BA, Liberal Arts, The University of Tokyo, Japan

#### Professional focus

Mr. Kiyama has worked as Senior Special Advisor for Climate Change to the President (JICA) since October 2008. He had previously served in the JBIC (Japan Bank for International Cooperation), predecessor of JICA.

#### 学歴：

東京大学教養学部卒業



## Kiyoshi Higuchi

### 樋口 清司

Senior Vice President, Japan Aerospace Exploration Agency  
President of International Astronautical Federation (IAF)

宇宙航空研究開発機構 副理事長

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#### Academic background

Bachelor Degree, Mathematics, Nagoya University, Japan

Master of Science Degree, Aeronautics and Astronautics, Massachusetts Institute of Technology, USA

#### Professional focus

Leading JAXA's strategic planning, international relations, industrial collaboration and exploration programs.

#### 略歴：

1946年、三重県生まれ。1969年名古屋大学理学部数学科を卒業。1977年マサチューセッツ工科大学大学院（MIT）航空宇宙学科修了。名古屋大学を卒業後、科学技術庁宇宙開発推進本部を経て宇宙開発事業団へ。小型ロケットの開発、H-Iロケットのシステム設計、国際宇宙ステーション計画の立ち上げ、将来計画の検討などに携わる。

2003年10月の宇宙航空研究開発機構（JAXA）発足後は、理事として経営企画、国際、産学官連携、月惑星探査を担当。2009年6月、有人宇宙システム株式会社副社長、2010年4月よりJAXA 副理事長に就任。

2012年10月、国際宇宙航行連盟（IAF:International Aeronautics Federation）会長に就任。2014年10月に再選され現在2期目。

Session on Recovery from Great East Japan Earthquake (GEJE) and Tsunami  
東日本大震災からの復興に関するセッション



## Makoto Iokibe, Professor 五百旗頭 真

President, Hyogo Earthquake Memorial 21st Century Research Institute,  
Japan  
Chair of "The Reconstruction Design Council in response to the Great East  
Japan Earthquake

公立大学法人 熊本県立大学理事長  
公益財団法人ひょうご震災記念 21 世紀研究機構理事長  
神戸大学名誉教授 防衛大学校名誉教授

### Academic background

B.A., Laws, Kyoto University

M.A, Laws, Kyoto University

LL.D, Kyoto University

### Professional focus

Society's capability to prevent and minimize the impact of disasters, effective policy recommendations under the basic themes of "creating safe and secure communities" and "realizing a society of coexistence" .

### 学歴：

京都大学法学部卒業

京都大学大学院法学研究科修士課程修了

法学博士（京都大学）

### 職歴：

昭和 44 年 4 月 広島大学助手・講師・助教授（政治史・外交史）（昭和 52 年 7 月まで）

昭和 52 年 8 月 米国ハーバード大学客員研究員（昭和 54 年 8 月まで）

昭和 56 年 10 月 神戸大学法学部教授（日本政治史・政策過程論）（平成 18 年 7 月まで）

昭和 60 年 4 月 放送大学客員教授（日本政治外交史）（平成 2 年 3 月まで）

昭和 62 年 4 月 東京大学社会科学研究所客員教授（日米関係）（平成 2 年 3 月まで）

平成 2 年 3 月 英国ロンドン大学客員研究員（平成 3 年 1 月まで）

平成 12 年 4 月 神戸大学大学院法学研究科教授（平成 18 年 7 月まで）

平成 14 年 4 月 米国ハーバード大学客員研究員（平成 15 年 3 月まで）

平成 18 年 8 月 防衛大学校校長（平成 24 年 3 月まで）

平成 24 年 4 月 公立大学法人熊本県立大学理事長（現在に至る）

平成 24 年 4 月 公益財団法人ひょうご震災記念 21 世紀研究機構理事長（現在に至る）

## Session on Recovery from Great East Japan Earthquake (GEJE) and Tsunami 東日本大震災からの復興に関するセッション



### Masako Yoneda, Professor 米田 雅子

Professor, Keio Advanced Research Centers, Keio University  
Member of Science Council of Japan  
Steering committee member of Academic Society Liaison Association

慶應義塾大学 先端研究センター 特任教授  
日本学術会議 連携会員

#### Academic background

Dr. of Environment, The University of Tokyo

#### Professional focus

Current research is to address the interdisciplinary research with an emphasis on fieldwork in a wide range of fields such as construction industry, agriculture, forestry, reforestation, disaster mitigation and local public policy for activating local society in Japan. Activity is to address the reconstruction houses that use the local wood in Kamaishi City. "Revitalizing Japan beyond the vertically divided society", "Recovery from Earthquake" and many books were published.

#### Abstract

Science Council of Japan and 30 Academic Societies' Liaison Global sharing of the findings from the past great earthquake disasters in Japan

After the 2011 Great East Japan Earthquake, members of the Science Council of Japan became founders and academic societies relevant to disaster management gathered to deepen mutual understanding and make efforts to integrate different specialties. At present, 29 Japanese academic societies and the members of the Science Council gathered, under the name Academic Society Liaison Association. These academic societies are in both the natural and social science fields, such as physical science, engineering, medicine, sociology, and economics etc.

This Association and the Science Council of Japan held 10 serial symposiums from 2011 to 2014 on 'How to protect people's lives and national land from huge hazards'. Based on these activities, we presented a Joint Statement of 30 Academic Societies "Proposal for Revision of Japanese Disaster Prevention and Reduction Policies" on May 10, 2012. Representatives of the Association handed this joint statement over to the Minister of Land, Infrastructure and Transport, the Cabinet Office Minister in charge of Disaster Prevention. We also published a special feature in "Trends in the Sciences" in March 2013, a monthly magazine of the Science Council.

Prior to the United Nations World Conference on Disaster Risk Reduction (March 2015), its preparatory Tokyo Conference (January 2015), as 10th of the Serial Symposiums, we had "Global sharing of the findings from great earthquake disasters". Then, we declared a Joint Statement of 30 Academic Societies and published the booklet that consists of the international activities and initiatives by the 30 academic societies.

I present this Joint Statement and appeal that experience and knowledge learnt from natural disasters should be widely applied to reduce all disasters worldwide. I emphasize the importance of collaborating across academies and discussing the direction of future beyond different expertise.

#### 学歴：

東日本の総合対応に関する学協会連絡会 幹事

東京大学より博士（環境）取得

建設業・農業・林業・森林再生・防災・減災、地方公共政策などの幅広い分野でフィールドワークを重視し、地方の活性化のための分野横断的な研究に取り組む。

岩手県釜石市では地元の木材を使った復興住宅に取り組む。

近著に「縦割りをこえて日本を元気に」「大震災からの復旧」等、著書多数。

#### 要約：

日本学術会議と30学会連携

日本の大震災等の経験を国際的にどう活かすか

日本学術会議の土木工学・建築学委員会は、自然災害軽減のための分野横断的な取組みを推進するため、東北地方太平洋沖地震後に、防災・減災に関係している学会によびかけ「東日本大震災の総合対応に関する学協会連絡会」を組織した。29学会と幹事会と合わせて30学会連携と称している。参加学会は、理学・工学にとどまらず、農業、医学、経済学、社会学等も入り、多様な構成となっている。

2011年11月より2014年11月までに、日本学術会議と学協会連絡会は、「巨大災害から生命と国土を護る-30学会からの発信」をテーマにした連続シンポジウムを10回開催してきた。これらの成果には、2012年5月10日に発表した「三十学会・共同声明 国土・防災・減災政策の見直しに向けて」がある。学協会連絡会の代表は、国土交通大臣、内閣府防災担当大臣へ共同声明を手交した。また

学協会連絡会の活動を、学術会議の月刊誌「学術の動向」2013年3月号に特集として掲載した。

国連防災世界会議（2015年3月）、東京会議（2015年1月）に先立ち、連続シンポジウムの第10回として学術フォーラム「東日本大震災・阪神大震災等の経験を国際的にどう活かすか」を2014年11月29日に開催した。この成果として30学会による英文の共同声明「Global sharing of the findings from the Past Great Earthquake Disasters in Japan」を発売し、学協会に所属する各学会の防災に関する取組みと国際的な活動を紹介する冊子を作成した。

本会議では、共同声明を紹介するとともに、自然災害から得られた経験と知見は国際的に広く共有されるべきこと、従来の専門分化した学会のあり方を見直し、学会間の本質的な議論と交流を深め、今後の学術の方向と基本政策を議論することが重要であることを、これらの活動を通して述べたい。



## Toshio Koike, Professor 小池 俊雄

Professor, School of Engineering, The University of Tokyo  
 Director, International Centre for Water Hazard and Risk Management under  
 the auspices of UNESCO (ICHARM)

東京大学 大学院工学系研究科 教授  
 水災害・リスクマネジメント国際センター (ICHARM) センター長

### Academic background

Doctor of Engineering, Hydrology, The University of Tokyo, Japan

### Professional focus

Hydrology, River Engineering, Environmental Psychology

工学博士（東京大学、1985年）：水文学

水循環の科学、河川工学、環境心理学



## Fumiko Kasuga, Dr. 春日 文子

Director, National Institute of Health Sciences, Ministry of Health, Labour and  
 Welfare, Japan

Advisor to the President of Science Council of Japan/ Director, National  
 Institute of Health Sciences

国立医薬品食品衛生研究所安全情報部長

日本学術会議 会長アドバイザー／国立医薬品食品衛生研究所安全情報部長

### Academic background

Master Degree in Agricultural Science, The University of Tokyo

Ph.D., Agricultural Science, The University of Tokyo

Doctor of Veterinary Medicine

### Professional focus

Food safety, public health, microbiological risk assessment for food safety, epidemiological studies on foodborne  
 diseases, statistical studies on microbiological testing for foods

### 学歴：

東京大学大学院農学系研究科 博士課程修了

農学博士、獣医師

### 研究歴：

食品衛生学、公衆衛生学、食品の微生物学的リスク評価に関する研究、食品由来感染症の疫学に関する研究、微生物  
 規格基準設定の確率論的考察

Session on Coordination with Environmental and Health Activities: Towards green growth and sustainable development  
 グリーン成長と持続可能な開発に向けた環境および健康活動との協調に関するセッション



Tetsuzo Yasunari, Dr.  
 安成 哲三

Director-General, Research Institute for Humanity and Nature  
 Member, Science Council of Japan  
 Chairman, Joint National Committee for IGBP, WCRP and DIVERSITAS

総合地球環境学研究所・所長

**Academic background**

Doctor of Science, Meteorology and Climatology, Kyoto University, Japan

**Professional focus**

Meteorology, climatology, and climate systems studies.

**Abstract**

**Future Earth and its importance in Asia**

Future Earth (FE) has been launched as an international initiative to promote research for global sustainability by the international science and technology alliance with partnership of the International Council for Science (ICSU), the International Social Science Council (ISSC), the Belmont Forum of funding agencies, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP), the United Nations University (UNU), and the World Meteorological Organization (WMO) as an observer (Future Earth, 2013). Future Earth will provide a single overarching structure for researchers, funders, service providers, and users, and integrates the existing Global Environmental Change (GEC) programmes.

Future Earth is a global research platform designed to provide the knowledge needed to support society's transformation to a sustainable world. We seek to build and connect global knowledge to increase the impact of research and to find new ways to accelerate transitions to sustainable development. Future Earth will contribute to achieving the goals of the high level UN General Assembly resolutions on global sustainability, as articulated at the 2012 Rio+20 Summit and subsequently. Future Earth will work with partners in society to co-develop the knowledge needed to support decision makers and societal change by focusing on three Research Themes – Dynamic planet, Global sustainable development and Transformations towards sustainability.

Here, I would like to emphasize the important role of Future Earth particularly in Asia. This region as a whole is characterized by rapid population and economic growth and urbanization, where great disparities of wealth both within and between countries, and social and ecological vulnerability to the potential impacts of climate change are increasing. Associated with this rapid population & economic growth, this region has become a huge hot-spot of GHG increase, air and water pollutions, affecting regional to global climate change. In addition, this region is located in the midst of monsoon climate and the huge active tectonic zone. These natural conditions cause high frequency of natural disasters, but also provide rich natural resources for agriculture & fisheries.

The complexity of sustainability issues in Asia requires visionary political and scientific leadership and high level of exchange and coordination between different epistemic communities in the region. The science community and society should tightly collaborate particularly in Asia to form Future Earth in Asia initiative, including the tight collaboration with the IRDR community. I do believe that without achieving sustainable society in Asia we cannot achieve global sustainability.

**略歴・主な活動等：**

京都大学理学部大学院理学研究科博士課程修了  
 理学博士

京都大学東南アジア研究センター助手、筑波大学地球科学系助教授、教授、名古屋大学地球水循環研究センター教授、2003年10月から2008年3月まで同大学21世紀COE「太陽・地球・生命圏相互作用系の変動学」拠点リーダー、2009年6月から2013年3月まで同大学グローバルCOEプログラム「地球学から基礎・臨床環境学への展開」拠点リーダー。2008年10月から2014年9月まで日本学術会議会員。2013年4月より現職。気象学、気候学、地球環境学を専門とし、2013年6月よりフューチャー・アース国際科学委員、同年8月より日本学術会議フューチャー・アースの推進に関する委員会委員長を務めている。気候変動に関する政府間パネル（IPCC）第5次評価報告書第1作業部会（自然科学的根拠）査読編集者。



## Barbara J. Ryan

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Secretariat Director, Group on Earth Observations (GEO)

### Academic background

Bachelor Degree, Geology, State University of New York, USA  
 Master Degree, Geography, University of Denver, USA  
 Master Degree, Civil Engineering, Stanford University, USA  
 Honorary Doctorate, State University of New York, USA

### Professional focus

Integration of Earth observation systems from around the world into a single, comprehensive system that uses coordinated data to understand how environmental factors impact human life. Millions of satellite images and other Earth observation data have been made available to the general public at no charge, allowing scientists, planners and policy makers to make better-informed decisions on problems that transcend political boundaries.

### Abstract

#### Coordination of Earth Observations for Sustainable Development

The Global Earth Observation System of Systems (GEOSS), built by the Group on Earth Observations (GEO), is both a policy framework, and an emerging infrastructure that allows decision makers to respond more effectively to the many environmental challenges facing the world today. Built upon broad, open data-sharing practices, information from an expanding array of observation systems is being made available to users around the world. The 96 Members (countries and the European Commission) and the approximately 90 Participating Organizations have recognized that the sheer complexity of the Earth's system cannot be captured by any single government, organization and/or observation system.

Since 2005, participants have contributed data, research, models and other analytical tools in nine Societal Benefit Areas (SBAs), encompassing agriculture, biodiversity, climate, disasters, ecosystems, energy, health, water and weather. Most of the activities comprising this work address national development goals, and increasingly sustainable development.

GEO has four primary objectives – to improve and coordinate observation systems; to advance broad, open data policies and practices; to foster increased use of Earth observation data and information; and to build capacity. Each one of these objectives contributes, and is indeed essential, to the advancement of sustainable development writ large, as well as to interplay and linkages with Disaster Risk Reduction.

While much has been accomplished over the last decade, more needs to be done. Broad, open data-sharing practices are still not universally accepted and employed. The Group on Earth Observations and its partners must continue to work aggressively on this issue if Earth observations are going to significantly advance the monitoring and even the delivery of the emerging Sustainable Development Goals (SDGs).



## Alex Ross

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Director, WHO Centre for Health Development (WHO Kobe Centre)

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### Academic background

B.S., Public Health, University of California, Los Angeles, USA

M.Sc., Public Health, University of California, Los Angeles, USA

### Professional focus

Implementation of Universal Health Coverage; promoting technological and social innovations for older populations; urban health and health inequities; urban health emergency management across entire disaster management continuum.

### Abstract

#### Ensuring health as a key strategy for disaster reduction

The Great Hanshin-Awaji Earthquake, Great East Japan Earthquake, and an ever-increasing number of natural disasters and communicable disease outbreaks present many lessons for disaster risk reduction (DRR) and management. With survival and wellbeing of populations at stake, the need to ensure health issues and systems are properly addressed and integrated across the continuum of emergency management is essential. Rapid urbanization and demographic changes, such as ageing populations, and societal inequities have transformed risks from, and implications of, natural disasters for highly concentrated urban settings. These lessons influenced the development of the Hyogo Framework for Action (HFA), and its 5 pillars; governance, risk identification, knowledge management and education, reducing underlying risk factors and preparedness for effective response and recovery. The WHO Kobe Centre (WKC) has led WHO research in support of the HFA advocating the need for disaster risk reduction to have a strong health emergency perspective with people's health at the centre.

The recent Ebola pandemic reminds the world of the need to ensure basic functioning health systems, and resilient societies, to effectively respond to communicable disease outbreaks. The same is true for all natural disasters. Revision of the HFA, culminating at the World Conference on Disaster Risk Reduction in Sendai in March 2015, needs to incorporate the many lessons from the health sector and inter-sectoral collaboration. These span many themes such as ensuring safe hospitals, preparedness planning for health workers and integrated response systems, consideration of new health needs for vulnerable populations (e.g. the aged and disabled) including the need to assure continuity of care during and after a disaster, risk communication, and attending to the psycho-social needs of survivors during and after emergencies. DRR relies on both systems focused on the person and on infrastructure and security. Incorporating international platforms as the International Health Regulations (rev 2005), the Inter-Agency Standing Committee, as well as lessons from Japanese cities (such as Kobe) that have recovered from disasters are essential to future progress. Special attention is needed to focus on the urban setting and issues of national-local decentralization and governance; on measurement; and to build resilient and healthy communities.



## Georgina Mace, Professor, CBE, FRS

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Professor of Biodiversity and Ecosystems, University College London

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### Academic background

BSc (Hons) (1976) Zoology, University of Liverpool, UK  
D.Phil (1979) Ecology, University of Sussex, UK

### Professional focus

Measuring the trends and consequences of biodiversity loss and ecosystem change including assessment of biodiversity, climate change impact on species and ecosystems, and species extinction risk.

### Abstract

#### Resilience to extreme weather

'Resilience to extreme weather' is a science-policy report prepared by the Royal Society, the UK's national academy of science. The report is the result of over 18 months work and was completed in November 2014. It was overseen by an expert working group of scientists, social scientists, engineers, an economist and representatives of the finance industry. The report examines how the intensity and focus of extreme weather may change over the next century, and how we can reduce the impact of extreme weather today while preparing ourselves for future changes. It examines what can be done in practice to build resilience. The report aims to help inform important decisions about adaptation and risk reduction that are being made at global, national and local levels. We examined people's resilience to weather- and climate-related extreme events, in particular, floods, droughts and heatwaves. We look at how improvements can be made to protect lives and livelihoods by comparing the options available and considering the fundamental building blocks for resilience. In 2015, important international agreements will be reached on disaster risk reduction, sustainable development and climate change. Our report aims to help those negotiating and implementing the new agreements to decide what action to take to most effectively build resilience and its main findings and recommendations will be presented. These address the design and development of resilience strategies at local, national and international level, means to account for the risks posed by extreme weather in the wider financial system, and improved utility of science to support all such decisions.



Session on Trans-Disciplinary Study Approach for Disaster Risk Reduction: Towards achieving resilience  
 科学と社会の協働を目指した防災科学技術の社会実装に関するセッション



Satoru Nishikawa, Dr.  
 西川 智

Vice-President, Japan Water Agency

**Academic background**

Master of Engineering, City Planning & Regional Science, The University of Tokyo  
 Doctor of Engineering, Quantitative Risk Analysis for BCP, Nagoya University

**Professional focus**

Dr. Nishikawa has worked as Senior Disaster Relief Coordination Officer at UN Department of Humanitarian Affairs where he coordinated international assistance to numerous disaster stricken countries and has served as the Executive Director of Asian Disaster Reduction Center. After resuming Japanese government service in 2004, held senior positions in the Cabinet Office and the Ministry of Land, Infrastructure, Transport and Tourism. At the wake of the Indian Ocean Tsunami in December 2004, he coordinated the Japanese Government technical assistance to the affected countries. Hosted and coordinated the 2005 UN World Conference on Disaster Reduction where the Hyogo Framework for Action was adopted. Proposed the Japanese BCP guideline in 2005. Initiated the long term regional recovery planning for Tohoku after the Great East Japan Earthquake in March 2011.



Haruo Hayashi, Professor  
 林 春男

Professor, Disaster Prevention Research Institute, Kyoto University

教授 京都大学防災研究所

**Academic background**

Bachelor Degree, Waseda University, Japan  
 Master Degree, Waseda University, Japan  
 Ph.D., Psychology, University of California Los Angeles, USA

**Professional focus**

Societal and human reactions to disasters, risk communication and education, information system for disaster management, standardization of emergency operations, multi-hazard risk assessment.

**学歴：**

早稲田大学第一文学部心理学科 卒業  
 早稲田大学大学院文学研究科修士課程 修了  
 カリフォルニア大学大学院心理学科博士課程 修了

**専門：**

社会心理学（災害時の人間行動力 / 防災心理学）、防災教育、防災情報システム、災害対応の標準化総合的なリスク評価



## Noritake Nishide

### 西出 則武

Director-General, Japan Meteorological Agency

気象庁長官

#### Academic background

B.Sc., Faculty of Science, University of Tokyo, Japan

M.Sc., Graduate School of Science, University of Tokyo, Japan

#### Professional focus

Planning and management of meteorological services and services on forecast, earthquake and volcano.

#### Abstract

**Earthquake Early Warning (EEW) provision in Japan – a result of comprehensive collaboration between science and society**

Japan's Earthquake Early Warning (EEW) system provides advance information on estimated seismic intensities and expected arrival times of principal (strong) motion when an earthquake hits. The information is issued just after fault rupture begins and before strong motion arrives, except in certain areas very close to the hypocenter. The system is used to mitigate earthquake-related damage by providing precious seconds for people to protect themselves, for trains to be slowed down and for factory lines to be controlled before strong ground motion starts.

EEW messages are delivered to specific users (such as train companies with connections to JMA via exclusive lines) and to the general public via TV, radio and cell phones. This widespread public provision is a result of comprehensive collaboration between science and society. In this relationship, JMA as an information provider and operators such as TV companies as information conveyors have collaborated to overcome a number of challenges toward the common goal of enhancing public safety. As the time available to brace for an earthquake in response to a warning is only a matter of seconds, public awareness efforts to familiarize people with the EEW system are indispensable in maximizing the effectiveness of the information provided.

The current EEW system was developed as a result of efforts to address these considerations. In the 2011 Great East Japan Earthquake, the issuance of a warning message by JMA in Sendai (the largest city within a certain distance of the hypocenter) 15 to 20 seconds before strong ground motion started had a significant disaster mitigation effect.

NOTE: The Earthquake Early Warning system is a result of joint technological development by the Japan Meteorological Agency and the Railway Technical Research Institute, and of achievements in technological development by the National Research Institute for Earth Science and Disaster Prevention.

#### 略歴：

昭和 52 年 3 月 東京大学理学部卒業

昭和 54 年 3 月 東京大学大学院理学系研究科修士課程修了

昭和 54 年 4 月 気象庁採用

平成 26 年 4 月 現職

#### アブストラクト：

緊急地震速報は、地震の発生直後に各地での揺れの到達時刻や震度を予想し、震源のごく近傍を除き、強い揺れが到達する前に利用者に届けられる情報です。強い揺れの前に、自らの身を守ったり、列車のスピードを落としたり、あるいは工場等で機械制御を行うなどの活用がなされています。

発表された情報は、専用の通信回線で繋がれた鉄道会社等の特定のユーザーだけで無く、現在、TV や携帯電話等を使って、広く一般に伝達されています。このように広く一般に、例えば TV の画面で瞬時に放送できるのは、情報の発表者である気象庁と、放送局などの情報の伝達を担う機関が、国民の安全という共通の目的のために、いくつもの課題を乗り越えて協働した成果です。また、利用者は、情報を受け取ってから数十秒から、場合によっては数秒に必要なアクションをとらなければならないことから、日頃から周知啓発を行うことが、この情報を最大限有効なものとするためには不可欠です。

これらの課題を乗り越え、2011 年 3 月 11 日の東日本大震災の際に気象庁から発表された緊急地震速報（警報）は、震源に近い仙台市でも強い揺れが到達する 15 から 20 秒前に伝達され、災害の軽減に大きく貢献しました。



Walter J. Ammann, Dr.

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President / CEO, Global Risk Forum GRF Davos

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**Academic background**

Master Degree, Civil Engineering, ETH Zurich, Switzerland

PhD. Degree, Structural Dynamics/ Earthquake Engineering, ETH Zurich, Switzerland

**Professional focus**

Founder and CEO of the Global Risk Forum GRF Davos, a foundation for research, education and implementation focused on integrative risk reduction and disaster management, on climate change adaptation, sustainable development, and on One Health. Particular interests in methods on how to reduce vulnerability and increase resilience from a holistic, integrative risk reduction and disaster management perspective.

**Abstract**

**The economics in DRR – How safe is safe enough?**

Limited resources in dealing with risks - with the fact that some residual risks always keep threatening societies - are a permanent concern, and underline the importance of resilience in times of a disaster. "How safe is safe enough?" is a key question in DRR. The concept of the integrative risk management, based on a transparent process for the risk analysis, the risk assessment, and for the evaluation of the measures to be taken, provides an efficient process for the definition of protection targets for people and their assets. Cost-effectiveness of the safety measures can be made transparent with the marginal cost concept, which also guarantees the comparability of the various risks and the proportionality of the measures for risk reduction. GRF Davos promotes a four level Safety Objective Pyramid which enables an ascending degree of explicit risk-effectiveness considerations. Level 1 and Level 2 cover the classic safety goals in the form of normalized and standardized measures and minimum requirements, while Level 3 and Level 4 demonstrate a paradigm shift to a risk-based approach according to the principles of proportionality and of the societal "willingness to pay" for a life saved.



## Megerssa Miressa Dinsa

Program Director, Microinsurance, Kifiya Financial Technology Plc., Ethiopia

### Academic background

Bachelor Degree, General agriculture

Master Degree, Accounting

MBA Degree, ongoing

### Professional focus

Geo data for Innovative Agricultural Credit Insurance Scheme (GIACIS) in collaboration with University of Twente, Netherlands to pilot NDVI (Normalized Differenced Vegetation Index) based Crop Insurance.

### Abstract

The recent popularity of the term resilience in the development discourse concerning arid and semiarid lands in Africa can be traced to two major international issues. The first is climate change, concerned with how to build resilient communities in the face of increasingly extreme weather events. The other is recurrent humanitarian crises, especially traced to the most recent drought - and conflict - induced 2011 disaster in the Horn of Africa in which Ethiopia lost US\$85 million from only one zone (Borana Zone). The objective of this brief is to summarize the application of three Microinsurance products in the country in resilience enhancements perspectives.

1) Rural Resilience Enhancement Project (RREP) JICA (Japan International Cooperation Agency) Funded project  
 This is a Weather Index Crop Insurance project that is totally satellite rainfall based and covered thousands of farmers. This year it paid the insured farmers due to crop losses as a result of rainfall deficits. The project can be taken as one of the best risk management options to the farmers.

2) Index - based livestock insurance (IBLI) Project which is led by ILRI, Cornell University and Oromia Insurance Company (OIC)  
 This is a project launched in 2012 and a recent scientific innovation that entitled pastoralist with risk management options for the first time in history. The insured peril based on Cumulative deviation (from normal conditions) of area aggregate observations of satellite-based vegetation index (NDVI) over the coverage rangelands.

3) Geodata for Innovative Agricultural Credit Insurance Scheme (GIACIS) a project led by Kifiya Financial Technology PLC, University of Tewente( the Netherlands) and other local partners.

In partnership with local financial institutions, the insurance product will be bundled with credit to purchase agricultural inputs. In combination with weather prediction services, the insured credit package will locally be made available through ICT infrastructure services (branchless banking). The project uses remote sensing (GEONETCast) to capture relevant variability in the performance of the crop growing season and adopt well known science stating that variability in land cover greenness (NDVI) at a 1km grid (SPOT-Vegetation imagery), aims to support insurance models that responds to impacts of drought in the agricultural production sector of Ethiopia.

By adoption of geodata technology and efficient delivery mechanisms, the scalable microinsurance and information services will reach most smallholder farmers in the rain-fed agricultural zones. This project will be launched in March 2015.



## Masanori Hamada, Professor 濱田 政則

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Professor Emeritus, Waseda University  
Chairman of Asian Disaster Reduction Center

早稲田大学名誉教授  
アジア防災センター センター長

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### Academic background

Dr. Eng., Earthquake Engineering, University of Tokyo

M. Eng., Earthquake Engineering, University of Tokyo

B. Eng., Civil Engineering, Waseda University

### Professional focus

Reinforcement of Industrial complexes on artificial lands reclaimed from sea; soil liquefaction countermeasures for quay walls and foundations of existing structures; promotion of international cooperation for natural disaster mitigation in the Asian region.

### Abstract

#### International Cooperation for Natural Disaster Mitigation

Natural disasters such as earthquakes, tsunamis, storms, landslides, etc have been increasing in recent years in the world, particularly in the Asian region. For the reduction of natural disasters, the author have contributed to strengthen international cooperation and have promoted joint researches with overseas countries, as the president of Japan Society of civil Engineers, and chairman of the Engineers without Borders, Japan as well as the chairman of Asian Disaster Reduction Center. The author introduces these organizations activities in the Asian countries for the emergency operation, rescue operation, quick recovery and restoration of the local people and the areas hit by natural disasters.

International cooperation and joint action should be strengthened to create safer and more secure societies against natural disasters

### 学歴：

工学博士，東京大学，地震工学（1980）

工学修士，東京大学，地震工学（1968）

工学士，早稲田大学，土木工学（1966）

### アブストラクト：

近年地震、津波、暴風雨、地すべりなどの自然災害が増加している。特に自然災害がアジア地域に集中して発生している。著者が世界の自然災害軽減のために行ってきた国際協力と多国間の防災に関する共同研究を紹介する。また、著者は日本の土木学会の会長、国境なき技師団・日本の理事長さらにアジア防災センターのセンター長として、自然災害によって被害を受けた人々と地域への緊急援助および復旧と復興に尽力してきた。自然災害に対する国際協力を推進して、自然災害に対してより安全で安心な世界を構築しなければならない。



## Srikantha Herath, Professor

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Academic Director, Institute for the Advanced Study of Sustainability, United Nations University

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### Academic background

B. Sc. Eng., Civil Engineering, University of Peradeniya, Sri Lanka

M. Eng., Water Resources Engineering, Asian Institute of Technology, Thailand

Dr. Eng., Civil Engineering, The University of Tokyo, Japan

### Professional focus

Research and education in water security, climate change and disaster risk reduction; research on impacts of global change on urban hydrology, flood forecasting, analysis and damage estimation, sediment transport and water cycle change; coordination of the University Network for Climate and Ecosystems Adaptation Research (UNCECAR), which is a coalition of over 20 leading universities of Asia Pacific, engaged in the joint development of educational, research and training programs for building resilience to address adverse global change impacts.

### Abstract

#### Transdisciplinary education for disaster risk reduction

During the past few decades, we have seen great advances in Information and Communications Technology. Yet, real progress is still to be seen in our ability to solve pressing societal problems. In disaster risk reduction, the focus shifted from response to proactive preventive approaches and hazard mitigation focus was replaced by the more appropriate risk assessment approach. However, with increasing concentration of population and assets in urban and vulnerable areas coupled with globalizing processes that has made world population very much interdependent, the losses from natural disasters are increasing. In addition, climate change is modifying magnitude and frequency of weather related extremes making current safety measures and standards obsolete and responding to evolving disaster risk from such rapid global changes a priority. As modern society increasingly demands application-oriented knowledge and the usability of scientific knowledge, integration of knowledge from various disciplines is becoming of vital significance. Consequently a new mode of application-oriented education and research is emerging on top of traditional academic research, employing a wider set of organizations and types of researchers. Research is not exclusively based in universities but needs to work with implementation agencies, user communities and professional bodies.

While we have achieved meaningful partnerships and collective engagement for disaster risk reduction in the past as we shifted from monodisciplinary (isolated) approaches to multidisciplinary (additive) and then to interdisciplinary (interactive) approaches, the highly uncertain, highly complex and fast-evolving problems we are currently dealing with require a more holistic transdisciplinary approach that brings all stakeholders together, including the academe, local government units, NGOs and communities, to enable rapid transfer of knowledge, experiences and quick feedback. UNU's experience with a network of leading universities in the region, the University Network for Climate and Ecosystems Change Adaptation Research (UNCECAR), demonstrated that postgraduate sector networks can develop and deliver effective educational and capacity development programs to promote transdisciplinary programs for disaster risk reduction. This presentation will discuss the need for transdisciplinary programmes for sustainable disaster risk reduction measures based on UNCECAR research projects experiences and propose a framework to promote new approaches to integrate education, research and capacity building to solve real world problems through an iterative process that facilitate collective problem definition, flexible solution approaches and commitment to sustainable solutions.



## Naohiro Nishiguchi 西口 尚宏

President, Japan Bosai Platform.  
Executive Managing Director, Japan Innovation Network

日本防災プラットフォーム代表理事、  
一般社団法人 Japan Innovation Network 専務理事

### Academic background

MBA, Kellogg School of Management, Northwestern University

### Abstract

#### Introduction of Japan Bosai Platform

Japan Bosai Platform (JBP) was created in 2014 as a result of continuous efforts for several years among stakeholders in both private and public sectors. Bosai is a Japanese word, which means 'a holistic approach to reduce disaster impacts'. In this short sentences, we have included JBP's purpose and its approach. Our purpose is to reduce disaster impacts, which include both structural and non-structural damages. Our approach to achieve the objective is to take a holistic approach. The reason we need to take a holistic approach should be obvious to everybody. Nature is, by definition, eco-system. Eco-system is, by definition, holistic, since many elements, which are interdependent on each other, are interacting with each other and a whole. Whenever nature causes impacts to our society, its approach and effects are, ironically, very holistic. Nature does not take a silo approach when it interacts with our society. The impact it brings about is not limited only in single area of our expertise. Accordingly, responding to natural hazard requires a holistic approach on our side. However, until recently, there was no platform for private and public sectors to gather at one table regardless of the differences of expertise and industries in order for them to take a holistic approach. We also heard from an international community that it is very difficult to understand a whole picture of what Japan could offer globally to reduce disaster impacts. Thus we created this Japan Bosai Platform to take a holistic approach among various industries, expertise and experiences in order for us to work with international stakeholders by offering a single point of contacts on Japanese expertise. JBP has now more than 100 member companies. Some of them are well-known global players, and some are still new to an international community despite their extensive expertise in Japan. We believe that a single point of contact of our expertise will help us to start communicating with each other in order for us to reduce disaster impacts globally. As our name clearly states, we intend to reduce disaster impacts by taking a holistic approach globally.

#### 学歴：

ノースウエスタン大学 ケロッグ経営大学院卒

#### アブストラクト：

##### 「日本防災プラットフォームのご紹介」

2014年に設立された日本防災プラットフォーム（JBP）は民間部門に点在している様々な防災技術・ノウハウを、既存の産業や業界の枠に囚われることなく、横串を通す形で国際社会へ紹介することを目的とした官民連携によるプラットフォームです。設立に当たっては官民関係者の無償のご尽力がありました。また、英文組織名に「防災」を用いることにより、日本の特徴である予防から復興までの一貫した流れと構造物・非構造物の両面での横串を通したアプローチを強調しています。自然災害は、皮肉なことに、人間の作った人為的な縦軸に関係なく面的なダメージを与えていきます。従って、防災においては横串を通したホリスティックなアプローチが効果的であることは自明であり、それはJBP設立の哲学でもあります。また、国際社会からの日本のノウハウがバラバラでよくわからないとの声に対応する為に、JBPという単一の窓口を設けることにより国際社会とのコミュニケーションを円滑に進めることも企図しております。



## Corazon T. Jimenez

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General Manager (Undersecretary), Metropolitan Manila Development Authority (MMDA)

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### Academic background

Bachelor of Science in Business Administration (BSBA), St. Theresa's College, Q.C.  
Master in Development Management (MDM), Asian Institute of Management (AIM)

### Professional focus

Provide assistance to the Chairman in setting the goals and long-range direction and in the supervision of the operation of metro-wide services under the jurisdiction of MMDA; oversee the formulation of MMDA's annual corporate plan, determination of annual programs, projects, and targets as well as the legislative agenda consistent with sectoral plans and policies; responsibility for the day-to-day management operations and administration of MMDA plans and programs as well as the supervision of its employees, and others.

### Abstract

#### Promoting ABCM in ASEAN 10 and the MMDA experience

The presentation discusses the Risk Profile for Natural Hazards of the Philippines and its impact over a period of 42 years. It also presents the country's standing as regard its risk vulnerability in comparison to 171 countries worldwide.

Metropolitan Manila, the country's capital is the jurisdictional scope of the Metropolitan Manila Development Authority (MMDA). The presentation discusses in brief about Metro Manila's hazards and risks and the impending disaster that is expected to happen.

Using the experiences and lessons learned by the country, the MMDA has recognized the importance of using the concepts and principles of Area Business Continuity Management as the foundation of its Disaster Risk Reduction Management practice. The framework is described at the strategic, tactical and operational level. Towards the end, Usec. Corazon Jimenez shares the important lessons in the practice of ABCM.





## Kenichi Tsukahara, Professor 塚原 健一

Professor, Department of Civil Engineering, Kyushu University

九州大学 大学院工学研究院 教授

### Academic background

PhD., Regional Science, University of Pennsylvania, USA

### Professional focus

Urban and regional planning, urban development project theory, disaster risk reduction, disaster resilient land and infrastructure management, international cooperation for infrastructure management.

### 学歴：

ペンシルバニア大学地域科学科博士課程修了

### 専門分野：

防災計画、都市・地域計画、社会資本管理、国際協力、安全な国土づくり、都市・地域計画、社会資本マネジメント、国際協力



## Kenji Satake, Professor 佐竹 健治

Professor, Earthquake Research Institute, The University of Tokyo

### Academic background

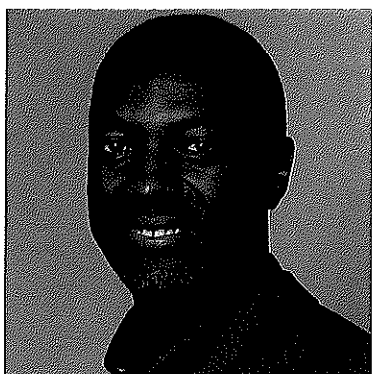
B. Sc., Geophysics, Hokkaido University

M. Sc., Geophysics, Hokkaido University

Ph.D., Geophysics, The University of Tokyo

### Professional focus

Prof. Satake's research interest is giant earthquakes and tsunamis in the world, for which he uses geophysical, geological or historical approaches. In geophysical approach, he developed a method to use instrumentally recorded tsunami waveforms and computer simulation to estimate the tsunami generation and propagation processes. In geological and historical approaches, he uses sand deposit brought by past tsunami or historical literature describing damage to infer the earthquakes and tsunamis in the past. He has collaborated and conducted field works in Indonesia, India or Myanmar. He is currently the vice-president of Asia and Oceanic Geosciences Society, a bureau member of International Union of Geodesy and Geophysics, and a fellow of American Geophysical Union.



Shuaib Lwasa, Dr.

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Associate Professor, Makerere University

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**Academic background**

Bachelor, Urban geography

Masters, GIS for Urban planning and management, Geoinformation management and spatial planning

PhD., Urban Geography

**Professional focus**

Inter-disciplinary and trans-disciplinary research on climate change adaptation in cities, climate related vulnerability, disaster risk reduction, climate change mitigation, land and property rights, landscape ecology and ecosystem services, climate change policy and practice, health impacts of climate change and spatial planning approaches for sustainability and mitigation of climate change.

**Abstract**

Inter-Disciplinary Study for Disaster Risk reduction -toward enforcing risk management" from the view point of African countries

Abstract: Studies of disaster risk have evolved from hazard mapping, characterization to emergency response, post recovery and risk reduction. These studies have been disciplinary specific making it difficult to integrate the knowledge for decision-making. Disaster risk reduction is now at the core of sustainable development and climate change especially for the post-2015 agendas. Integrative frameworks, tools and approaches are strengthening risk reduction in Africa. Some examples have been documented on the emerging knowledge from integrated approaches but risk management in the wider definition will benefit more from harmonized frameworks, tools, metrics and methodologies. This presentation focuses on how Inter-Disciplinary Study of Disaster Risk reduction is supporting enforcement of risk management in African countries. Case studies on flood risk reduction, landslides, earthquakes will be utilized to illustrate how the emerging wisdom is utilized in reducing current and future risk. The presentation will also discuss the challenges faced by risk reduction inter-disciplinary approaches in Africa.



## Toshimitsu Komatsu, Professor 小松 利光

Professor extraordinary, Emeritus professor, Kyushu University, Japan

九州大学特命教授、名誉教授

### Academic background

Dr. of Engineering, Civil Engineering

### Professional focus

Hydraulics, river engineering, coastal engineering, disaster prevention and disaster reduction under the climate change

### Abstract

#### Implementation oriented technology for coping with natural disasters under the climate change

There will be a large gap between disaster hazard and disaster management capacity due to the climate change in the near future. The large gap will bring our society much more terrible damage than we expect to be. Under increasing hazard an aspect of disasters has been changing. We should develop and present implementation oriented technologies in a hurry for coping with the new situation of disasters.

Since we will not be able to pay much money for taking countermeasures, these have to be very economic and efficient. Our research group have been developing some new technologies for coping with the increasing natural hazard. Here I will explain a new flood control technology as an example. We have proposed dry dams in series and Cascade operation system for flood control as one of concrete countermeasures against the climate change.

Large-scale slope failures would occur more often by torrential rains in the future. Such slope failures or deep sheeted landslides could lead to formation and collapse of a natural dam. We recommend active construction of dry dams in the lower reaches in mountainous areas as one of adaptations to reduce damage not only from flood but also from flood surge due to natural dam break. A dry dam is one of eco-friendly flood control infrastructures.

The "Cascade-type" flood control is remarkably more effective than the conventional one which cannot permit overflowing from an emergency spillway in each dam. The new concept allows overflowing from upstream dams constructed in series except for the most downstream dam which is generally the nearest dam from a residential area. Application of the Cascade method using dry dams compatible with environmental preservation is expected to make effective disaster prevention. The size of each dam can be reduced in the Cascade method. This new method could make it possible to estimate the needed capacity of adaptation under the increasing amount and intensity of rainfall easily because of a linear characteristic between the amount of flood and the capacity of dry dams newly constructed. What is more, utilization of a dry dam as a measure against dam sedimentation is of great use under the climate change.

### 略歴：

九州大学特命教授、名誉教授

工学博士（1978）

水理学、河川工学、海岸工学

気候変動下の防災・減災

### アブストラクト：

#### 気候変動の下での自然災害に対する実践的適応策

近い将来気候変動により災害外力と防災力の間に大きなギャップが現れてくるものと思われる。この大きなギャップは我々の想像以上に深刻な被害を我々の社会にもたらすことが懸念される。増大する災害外力の下では災害の様相が変わりつつある。我々はこの新しい災害の状況に対抗するために急いで実践的な適応技術の開発と提供を行わなければならない。

適応策を実施するために多くの投資を行うことは困難であることから、これらの適応策は極めて経済的かつ効率的なものでなければならない。我々の研究グループは、増大する災害外力に対抗するためにいくつかの新しい技術の開発を行ってきた。ここでは一例として新しい洪水制御技術を紹介したい。我々は直列配置された穴あきダム（流水型ダム）と洪水制御のためのカスケード方式を、気候変動に対する具体的な適応策の一つとして提案してきた。

豪雨により将来は今よりもっと頻繁に大規模斜面崩壊が起こるものと思われる。このような大規模斜面崩壊や深層崩壊は天然ダムの形成・崩壊を引き起こすことが考えられる。洪水災害だけでなく天然ダムの崩壊事故からの被害を軽減するために、山地部の中の下流側に適応策の一つとして穴あきダムを積極的に建設することを我々は推奨してきた。穴あきダムは生態系にも優しい洪水制御インフラの内一つである。

カスケード型の洪水制御システムは、各々のダムで非常用洪水吐きからの越流を許さない従来の洪水制御方式よりもはるかに効率的である。この新しいコンセプトは、直列に配置されたダム群の内、一般的に都市域や住居地域に最も近い最下流のダム以外は、非常用洪水吐きからの越水を認めるものである。環境の保全と共存しうる穴あきダム群を用いたカスケード方式の適用は、効率的な防災策となることが期待される。カスケード方式では、各々のダムの規模は小さくすることができる。この新しい方式では、洪水の増加量と新しく建設される穴あきダムの容量との間に線型特性があることから、増大する総雨量や雨量強度のもとで、簡単に必要とされる適応策の規模を推定することが可能となる。その上、ダム堆砂対策としての穴あきダムの活用も気候変動の下で非常に有用である。



## Wei-Sen Li, Dr.

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Secretary General, National Science and Technology Center for Disaster Reduction, Taiwan  
Co-chair at APEC Emergency Preparedness Working Group (EPWG)

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### Academic background

Bachelor of Engineering, Civil Engineering, National Taiwan University, Taiwan

Doctor of Philosophy, Civil Engineering – Earthquake Engineering, Seismic Design, Structure Dynamics, National Central University, Taiwan

### Professional focus

Development and implementation of transportation, disaster reduction and management systems; building capacity in the region through engaging public-private partnership to better mitigate and respond to emergencies and natural disasters in APEC economies.

### Abstract

#### New prospects of science and technology on integrated disaster risk management

Applying science and technology (S&T) for better enhancing quality and efficiency of disaster management is a global trend and highlighted by the Integrated Research on Disaster Risk (IRDR). In order to identify and bridge gaps at different levels of governments, a demands-oriented approach should be adopted to build up partnership between scientists, engineers, decision makers and emergency responders that is based on real demands. Therefore, outcomes of S&T should be developed for practical implementations, instead of pure research. For example, comprehensive information system formulating common operational pictures at central and local governments will effectively synergize operations by offering information sharing and transparent risk analysis. Cross-cutting knowledge and inter-disciplinary collaboration are two essential keys to succeed integrated disaster risk management. A case of typhoon emergency operation will demonstrate a best practice that how S&T could benefit emergency responders most. Under IRDR, four working groups include Forensic Investigations of Disasters, Risk Interpretation and Action, Disaster Loss Data and Assessment of Integrated Research on Disaster Risk that should organize a paradigm to meet the urgent demands of disaster risk management, especially in developing countries. A suggested concept to develop a flagship project based on IRDR's recent outcomes will accelerate interactions and synergy between S&T and disaster management. A pilot project, designed to solve insufficiency of emergency preparedness at municipal and township areas by assistance of integrated S&T, will make a trial to fill gaps found by S&T evaluation and provide feasible solutions through demands-oriented discussion. The goal of the pilot project is aimed at serving a pathfinder to fulfill integrated disaster risk management.



## Susan Cutter, Professor

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Professor, University of South Carolina, USA  
Director, Hazards and Vulnerability Research Institute, University of South Carolina

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### Academic background

B.A., Geography, California State University, USA  
M.A., Geography, the University of Chicago, USA  
Ph.D., Geography, the University of Chicago, USA

### Professional focus

Disaster vulnerability/resilience science—what makes people and the places where they live vulnerable to extreme events and how vulnerability and resilience are measured, monitored, and assessed.

### Abstract

#### Interdisciplinary Perspectives on Disaster Risk Management: Linking Science to Policy and Practice

This paper highlights the role of integrated science in support of disaster risk management. Integrated disaster research engages multiple stakeholders, knowledge (indigenous to scientific), disciplines, methods, and scales. At present, hazards and disasters research is discipline-focused, primarily conducted by academics with slow implementation of the science to practice or policy. Efforts to speed up the transfer of knowledge to practice are part of the mission of the Integrated Research on Disaster Risk Programme, co-sponsored by UNISDR, ICSU, and ISSC. Examples from IRDR projects are used to illustrate the opportunities and challenges of not only multi- and interdisciplinary research on disaster risk, but linking the research findings to policy and practice to reduce disaster loss and move towards more resilient communities.



## Sanny Ramos Jegillos

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Senior Advisor, Disaster Risk Reduction and Recovery  
 UNDP Bangkok Regional Hub

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### Academic background

Bachelor's, Management and Industrial Engineering, the Mapua Institute of Technology, Philippines  
 Master's Degree, Emergency Management, Charles Sturt University, Australia

### Professional focus

Crisis Prevention, Disaster Preparedness and Recovery Partnerships, Training, Capacity Building – in the Asia Pacific region.

### Abstract

Helping Countries Establish National Disaster Loss and Damages Data Base- Lessons Learned by the United Nations Development Programme.

The ongoing discussions on the successor framework of the Millennium Development Goals (MDGs) and Hyogo Framework for Action for Disaster Risk Reduction reveal their importance to enhance accountability of countries to minimize losses and damages due to disasters by obtaining a commitment to a set of goals and targets. Weaknesses are identified within the current framework- the MDG had not incorporated DRR and the HFA consists of process indicators rather than results indicators. The ongoing discussion of the succeeding framework/s indicate a reform oriented road map, i.e. the integration of DRR targets in the proposed Sustainable Development Goals (SDGs); and for HFA2, the need to have a clear set of baseline information, results and risk reduction targets vis a vis losses and damages.

UNDP's role is to support its partners, particularly national and local governments in building resilience to disasters and other types of shocks. These stakeholders need capacity involving simple, practical and operational framework, processes and tools. This include a multi year and multi phase support through programmes that support countries graduate towards risk informed development and recovery/reconstruction. These programmes can include support to improving accountability for risk and development, i.e. damage and loss reporting, clear accountabilities to targets, indicators, system for monitoring and reporting; improved coherence with global policy architecture- SDG, HFA, Climate Change; and measurable increase in public investment in DRR based on risk information.

The presentation will describe UNDP's experiences and lessons learned in helping countries establish capacity for monitoring, reporting and using national disaster loss and damage databases. This will include the benefits and their relevance to planning and decision making, the fundamental elements required to make them useful and recommendations on how these can be improved. These lessons learned are based on UNDP's work in 15 countries in the Asia Pacific Region through the efforts of the Bangkok Regional Hub.



## Ali Chavoshian, Professor

Director, Regional Centre on Urban Water Management under the auspices of UNESCO

Professor, Iran University of Science and Technology, School of Civil Engineering

Director, International Drought Initiative (IDI) Secretariat

### Academic background

Bachelor Degree, Civil Engineering, KN Toosi University, Iran

Master Degree, Civil Engineering, TMU University, Iran

Doctoral Degree (PhD.), Integrated River Basin Management, University of Yamanashi, Japan

### Professional focus

Extreme hydrological events (flood and drought), disaster risk management, IWRM and climate change, nature-oriented river restoration.

### Abstract

#### An Overview to Natural Disaster Risk in West and Central Asia with Emphasize on Water Scarcity

Number of reported natural disasters has been doubled since 1980s in the world. However, this figure has been almost tripled in the West and Central Asia in the same period. This region is affected by several hazards: earthquakes, flash floods, landslides and more importantly drought.

The climate classification of many parts of this region is primarily arid and semi-arid. Water scarcity is a major problem with rapidly growing populations and increasing demands for water. Per capita renewable water resources in 1950 were four times greater than 2010 and the projection for 2050 shows it will be dropped to 11 times less than global average. Urmia Lake is one of the largest salt lakes in the world and is located in a closed basin in north-west Iran. It is the largest lake in the Middle East and the sixth largest saltwater lake on earth with an average depth of 5.4m depth. The lake's surface area has been estimated to have been as large as 6,100 km<sup>2</sup> in 1995, but since then it has generally been shrinking and was estimated from satellite image to be only 1300 km<sup>2</sup> in November 2014, approximately 25% of its original surface area. Those around the lake are afraid of a situation similar to Aral Sea, which has dried up over the past several decades. Disappearance of the Aral Sea has been an environmental disaster affecting people throughout the region. The population surrounding Urmia Lake is much denser putting more people at risk of impact. An estimated of 76 million people live within a radius of 500 km of the lake in five countries of Iran, Turkey, Iraq, Armenia and Azerbaijan.

The increase economic losses of disaster coupled with poverty and other socio-economic problems as well as political instability make it a challenge for many governments to engage effectively in disaster risk reduction. It is also important to note trans-boundary dimensions of disasters in the region too. There is a need to shift DRR paradigm from reactive measures toward proactive actions. While a certain level of momentum has been observed on disaster risk management in the region, it has not yet been matched with the inter-disciplinary approaches required for an effective DRR. The mitigation and adaptation strategy should focus mainly on preparedness indicators/standards and an approach to establish disaster resilience communities with respect to socio-economic processes and human activities.

Panel Discussion on "Tokyo Statement : from Tokyo to Sendai"  
 パネルディスカッション："東京宣言：仙台へ向けて"



Kiyofumi Konishi  
 小西 淳文

Senior Special Advisor, Japan International Cooperation Agency (JICA)

**Professional focus**

He has served many positions including Director General of Training Affairs and Citizen Participation Department (2012-2013), Director General of Economic Infrastructure Department & Director of Office for Science and Technology Cooperation (2009-2012), Chief Representative of JICA Senegal Office (2002-2006). He was engaged as a diplomat of Embassy of Japan in Republic of Zaire (1987-1990). He is one of the Program Committee Members of SATREPS (Science and Technology Research Partnership for Sustainable Development).

**略歴：**

東京大学文学部社会学科卒業後、(特)国際協力事業団(JICA)入団。  
 外務省経済協力局、在ザイール共和国(現コンゴ民主共和国)日本大使館勤務、JICA セネガル事務所長、経済基盤開発部長、国内事業部長などを経て現職に。  
 SATREPS 推進委員会メンバー。  
 著書に『科学技術と国際関係』(内外出版：2013)第4章「科学技術外交—政府開発援助(O DA)の視点から」、『地球のために、未来のために SATREPS』(国際開発ジャーナル社：2015)あり。



Rüdiger Klein, Dr.

Executive Director, Integrated Research on Disaster Risk (IRDR)

**Academic background**

PhD., School of Oriental and African Studies (SOAS), University of London, UK

**Professional focus**

Grand challenges in sustainability and disaster risk.