WFEO Standing Committee on Disaster Risk Management (WFEO-CDRM) Strategic Plan (2013–2017)

Hosted by

The Science Council of Japan

Assisted by

The Japan Federation of Engineering Societies

and Kyushu University

Revised

March 2016

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Abstract

Disaster risk management (DRM) plays a major role in preventing and reducing the impact of disasters worldwide. The WFEO-Committee on DRM (hereafter CDRM) was established in 2009 as one of a number of standing technology committees (STCs) hosted by Japan; its first round of activities was carried out between September 2009 and September 2013. Since September 2013, during its second phase, the CDRM has promoted and proposed useful and effective disaster risk management initiatives, ultimately contributing to achieving the sustainable development goals (SDGs) of the UN. The CDRM's strategic plan for 2013–2017, created in the fall of 2013 and updated in the spring of 2016, presents the CDRM's vision, mission, mandate, operating principles, and objectives, which are all designed to achieve the purposes of the WFEO.

The CDRM vision and mission are based on the vision and mission of the WFEO. The CDRM vision is to be a WFEO standing technical committee that professionally and internationally addresses disaster-related issues in order to reduce natural disaster risks. The CDRM mission is to introduce, recommend, and disseminate useful, practical knowledge and expertise associated with disaster prevention and reduction. The Committee will continue to advance educational, practical, and professional activities in the field of DRM, including disaster prevention, reduction, and resilience. The CDRM has three subcommittees focusing on water- and earthquake-related disasters, and capacity building for natural disasters.

The themes for the second phase of activities (2013–2017) are as follows:

(a) holding international symposiums and panels on DRM to create international awareness campaigns;
(b) collaborating with UN bodies (e.g., UNESCO) and international organizations (e.g., I3R2) to extend and contribute to committee activities;
(c) sharing DRM information with national members of the WFEO to help them improve their DRM skills;
(d) creating guidelines related to natural disasters to inform and assist developing countries;
(e) participating in international conferences related to natural disasters, and effectively contributing to the disaster risk reduction policies of the UNISDR, IRDR and other international organizations, through the activities of individuals, the committee secretariat, and the three subcommittees on water-related, and earthquake-related disasters, and disaster capacity-building.

The CDRM annual budget is approximately 100,000 EUR; SCJ, JFES, and Kyushu University have provided additional financial and human resources.

The WFEO Vision

The World Federation of Engineering Organizations (hereafter WFEO) is engineering profession internationally recognized and chosen as the leader of the engineering; it cooperates with national and international professional institutions to develop and apply engineering to constructively resolve international and national issues for the benefit of humanity (www.wfeo.org).

The WFEO Mission

The missions of the WFEO (also detailed at www.wfeo.org) are as follows:

- To represent the engineering profession internationally, providing collective wisdom and leadership within the profession to assist national agencies in choosing appropriate policy options that address the most critical issues affecting countries around the world;
- To enhance the practice of engineering;
- To make engineering information on available to countries around the world and to facilitate communication between member countries about international best practice in key engineering activities;
- To foster socio-economic security, sustainable development, and the alleviation of poverty among all countries of the world, through the proper application of technology;
- To serve society and to be recognized by national and international organizations and the public, as a respected and valuable source of advice and guidance on the policies, interests, and concerns that relate engineering and technology to the human and natural environment;
- To cooperate with Funding Agencies such as development banks;
- To encourage public-private partnerships by incorporating an engineering dimension;
- To propose public policies that need to be implemented.

The WFEO-CDRM Background

In general, disasters are caused by natural hazards and/or manmade incidents. The disasters referred to hereafter arise as consequence of natural hazards such as earthquakes, tsunamis, floods, droughts, cyclones, typhoons or hurricanes, landslides, forest fires, and volcanic eruptions; they are also caused by manmade incidents such as industrial accidents, power cuts, and air-pollution. These disasters affect human lives directly or indirectly, while having an impact on human societies and natural environments.

There are various phases of disaster risk management (DRM) —from identifying, evaluating, mitigating, and managing disaster risks to adapting to climate change. Risk management includes disaster preparedness programs, disaster response, disaster damage assessment, reconstruction, and rehabilitation. Note that there are various types of damage, including direct and indirect damage, physical and non-physical damage; monetary and non-monetary damages; short-term, mid-term and

long-term damage; as well as economic damage and the loss of human life. Hence, approaches to mitigation and adaptation activities should be evaluated for each disaster in cost-benefit terms.

The WFEO Committee on DRM (hereafter the CDRM) helps to develop and implement advanced expertise and practical training to achieve societies that are strong and resilient in the face of disaster, while mobilizing every available resource to reduce disaster risks and potential damage. The extent and level of damage and risk should be discussed and determined within the CDRM. The definition of "risk" is not necessarily restricted to likely dangers. "Risk" also has a broader meaning, related to the mitigation of and adaptation to situations that result from disasters.

It is also important to consider not only single hazards or risks, but also the interrelation between multiple hazards and risks. After the 2011 Tohoku earthquake and tsunami in Japan, "resilience" has also been an important key word in disaster risk management. It is particularly important to consider the role of resilience (in conjunction with disaster reduction) when considering global climate change where the disaster cannot be prevented by means of current technology and infrastructure. Thus, the concept of DRM can include "resilience."

The WFEO-CDRM Vision

The CDRM vision is to be a WFEO standing technical committee that professionally and internationally carries out activities to reduce natural disaster risks, from an engineering perspective. It must introduce and recommend useful practices and lessons as well as engineering knowledge and innovative approaches to disaster damage reduction and the promotion of sustainable, sound development. The CDRM should contribute to all parts of the risk cycle, including identification, evaluation, the mitigation of, and the adaptation to disasters, which relate to all aspects of human life as well as to the economy, social activities, and the environment. The CDRM's priorities include developing comprehensive structural and non-structural measures to increase disaster resiliency and business continuity.

The WFEO-CDRM Mission

As a standing committee of WFEO, the CDRM aims to exchange, share, and transfer knowledge, technology, and expertise in order to reduce disaster risks. It also fosters research and investigations that relate to DRM, including examples of best practice, lessons, and their implementation. The CDRM will create advisory documents, policy papers, guidelines, reports, and booklets.

The CDRM will gather and disseminate DRM-related information that can help WFEO member countries, engineering societies, and leading engineers effectively mitigate risk and help societies adequately adapt to potential risks. The CDRM also helps to build the capacity building of engineers working in these areas, by disseminating information through WFEO member country linkages to decision makers, governmental organizations, engineering societies, and leading engineers. The

CDRM also coordinates international DRM efforts, and organizes conferences, presentations, and workshops related to DRM.

The WFEO–CDRM Mandate

The CDRM shall support the WFEO and the engineering profession worldwide by encouraging and supporting sustainable engineering approaches that reduce disaster risks; it will support engineering innovation that cannot only prevent a risk from turning into a disaster, but also use the threat as an opportunity to transform society, achieving a higher level of sustainability. Transformation can be achieved through an increase in social capital in communities, and the promotion of development, both structural and non-structural, integrated into risk reduction and initiative to build resiliency. The CDRM mandate represents a paradigm shift; it focuses on emergency response and recovery, and on implementing risk management activities before any disaster occurs. This process should be supported, through an integrated approach, by vulnerability monitoring and the development of tools such as standards to measure risks and preparedness levels to build the capacity to respond to disasters.

The WFEO–CDRM's Operating Principles

The CDRM operates as a knowledge-hub that focuses on recognizing and promoting the worldwide contributions of engineers and practitioners, and on providing need-driven education and information to engineering communities around the world, especially in developing countries. The scientific analysis and advice on reducing risk (a combination of hazards and vulnerability) provided and distributed by the CDRM, provides an opportunity to improve societies and ways of living. In particular, understanding the scientific basis of a particular risk creates a crucial opportunity to make sustainable societal adjustments instead of unsustainable ones. Reducing disaster risk reduces damage that might otherwise impede continued economic development and environmental sustainability.

Sharing best practice and lessons learned, as well as DRM networking and information sharing, are two important operating principles of the CDRM. Natural disasters are categorized as either water-related disasters or earthquake-related disasters for further investigation and discussion in the CDRM.

The WFEO-CDRM's areas of focus, including the scope of key subcommittees

Because there are a wide variety of disaster and risk management categories, diverse methodologies and technologies are needed to deal with them. During its initial two-year cycle of activities, the CDRM only considered water- and earthquake-related disasters. As a result of its good outcomes between 2009 to 2013, the committee was strongly advised to expand the scope of its activities to

other disasters such as air pollution, volcanic explosions, forest fires, drought, desertification, and communicable diseases. Accordingly, the CDRM has upgraded its activities through the following three subcommittees: Water-related Disaster Risk Management (WDRM), Earthquake-related Disaster Risk Management (EQDRM), and Capacity Building for Natural Disaster Risk Management (CBNDRM), in order to deal with many different types of disasters.

The subcommittee on WDRM

- Objectives: global disaster risk mapping for water-related disaster risks (e.g. floods and droughts), evaluating the impact of climate change on water-related disasters, finding ways to mitigate and adapt to the disaster, developing an integrated approach to flood and drought risk management, and fostering a community-based approach to water-related disaster risk reduction, and food security in areas prone to water-related disaster.
- Goals: increasing the capacity to cope with water-related disasters using structural and non-structural measures; developing tools and necessary documents for water-related risk assessment; developing and disseminating prediction and warning systems; organizing and supporting conferences, presentations, and workshops related to water hazards; and developing a set of water-related disaster preparedness standards.

The subcommittee on EQDRM

- Objectives: increasing the earthquake resiliency of urban areas by using innovative engineering; assessing best practice and lessons learned; proposing methods of implementing the earthquake DRM program; promoting awareness of earthquake disaster risk; and introducing risk reduction expertise and experience.
- Goals: fostering research and investigations of value to earthquake DRM (e.g. disaster forensics studies); organizing and supporting conferences, presentations, and workshops related to earthquake engineering; studying the interaction of damage to infrastructures during earthquake disasters; and developing a preparedness standard for earthquake disasters.

The subcommittee on CBNDRM

- Objectives: providing information and support on DRM practices and programs, in accordance with their social and economic needs, focusing on best practice to develop recommendations for the implementation of a DRM program;
- Goals: implementing non-structural measures (e.g. land use planning); developing tools for natural hazard awareness and disaster risk reduction awareness (e.g. early warning systems), implementing natural hazard emergency readiness and response plans; and enhancing disaster risk reduction capacity development for engineers by organizing and supporting conferences, presentations and workshops related to DRM.

The WFEO-CDRM Second Phase Time frame for Activiites

The following major events have been scheduled and will be included in the table below:

No	Date	Activities (Place)
1	September 2013	The CDRM second phase started in WES2013 (Singapore)
2	April 2014	The Chair of the CDRM participated in Extended Executive (Ext. Ex.) Board meetings (Paris)
3	September 2014	The 8th Joint International Symposium on DRM was held during the 2014 annual meeting of AIJ (Kobe, Japan)
4	December 2014	The CDRM held a face-to-face meeting during the Ext. Ex-Council meetings (Paris)
5	March 2015	The Chair of the CDRM participated in Ext. Ex-Board meetings (Paris)
6	August 2015	The CDRM special session was held during the 2015 I3R2 (Seoul, Korea)
7	November 2015	The 9th Joint International Symposium on DRM was held during the WECC2015 (Kyoto, Japan)
8	November 2015	The CDRM held a face-to-face meeting during the WECC2015 (Kyoto, Japan)
9	March 2016	The Chair of the CDRM participated in Ext. Ex-Board Meetings (Paris)
10	August 2016	The CDRM will collaborate with the committee of the 2016 I3R2 (Kandy, Sri Lanka)
11	September 2016	The 10th Joint International Symposium on DRM will be held at Taiwan National Cheng Kung University (Tainan, Taiwan)
12	December 2016	The CDRM will hold a face-to-face meeting during the Ext. Ex-Council meeting (Lima, Peru)
13	March 2017	The Chair of the CDRM participates in Ext. Ex-Board Meetings (Paris)
14	September 2017	The 11th Joint International Symposium on DRM will be held at the JSCE annual meeting (Fukuoka, Japan)
15	November 2017	The CDRM will hold a face-to-face meeting during the WEF2017 (Roma, Italy)

WEC= World Engineers Convention; WECC= World Engineering conference and convention; WEF= World Engineering Forum; WES= World Engineers Summit.

Action Plan for 2016

The CDRM will propose the following 2016 action points:

- The CDRM will hold a joint international symposium on DRM in Taiwan (Tainan City), in the fall of 2016 (possibly September), organized by the CDRM and Taiwan National Cheng Kung University.

- The CDRM will collaborate with the International Institute for Infrastructure Resilience and Reconstruction (I3R3) to host an international conference in Sri Lanka in early August 2016. CDRM members will be sent to the conference to work with the I3R2 committee members.
- The CDRM will collaborate with a disaster-related committee of the Federation of Engineering Institutions of Asia and the Pacific (FEIAP). We aim to establish a good relationship with the FEIAP disaster-related committee through various activities (e.g., a collaboration with a CDRM international symposium). In the next FEIAP meeting in Perth (Australia) in July 2016, Dr. Kanga (WFEO President Elect) will attend on behalf of the chair of the CDRM.
  (Note) The above plans will be implemented mainly by the CDRM secretariat.
- Other potential action plans: the CDRM may cooperate with the Earth Sciences and Geo-Hazards Risk Reduction Section (SC/EES/EGR) of UNESCO to publish a building seismic-standards handbook. The CDRM may collaborate interdisciplinary activities with other STCs (e.g., disaster and informational, or innovative technology).

Committee Structure and Membership

The CDRM currently consists of three subcommittees: the WDRM, EQDRM, and CBNDRM subcommittees. The Chair, Vice Chairs, and leaders of the subcommittees have not changed since September 2013. The CDRM is organized as follows:

- Chair: Dr. Toshimitsu Komatsu (Japan)
- Vice-chairs: Dr. Syunsuke Ikeda (Japan), and Dr. Vilas Mujumdar (United States)
- Subcommittee on WDRM, Leader: Professor Kenichi Tsukahara (Japan).
- Subcommittee on EQDRM, Leader: Dr. Akira Wada (Japan)
- Subcommittee on CBNDRM, Leader: TBD
- Secretary: Professor Kenichi Tsukahara (Japan)
- Deputy secretary: Dr. Nobuaki Kimura (Japan)
- The membership list is available at
  http://www.wfeo.org/stc_disaster_risk_management_membership/

The Responsibility of the Secretariat

The Secretariat is responsible for the following:

- Preparing activity reports, including annual and biennial reports;
- Helping the CDRM Chair by circulating memoranda and being responsible for liaison when the Chair participates in the WFEO extended executive council meetings, the WFEO general assembly, and other conferences;
- Preparing activity events such as international symposia and workshops;
- Managing the CDRM budget;
- Updating the website and issuing an annual newsletter.

Website Update and Newsletter

- The CDRM website has been updated by the Secretariat to reflect current CDRM activities: http://www.wfeo.org/stc_disaster_risk_management/
- The CDRM newsletter is issued once by the secretariat annually, and delivered to CDRM members.

Annual Budget (based on 2015 figures)

The SCJ has provided financial support to the CDRM, supporting travel, personnel, the use of rooms, and printing expenses. The Japan Federation of Engineering Societies (JFES) and Kyushu University partially support CDRM activities.
The annual budget is about 105,000 EUR; a detailed breakdown of the budget is shown below:

Item	Description	Cost (EUR)
Secretariat: daily operations	Office expenses, such as printing of documents, brochures, meeting documents; personnel costs, etc.	36,000
Costs for attending WFEO meetings	Chair and secretariat staff travelling expenses, accommodation, and subsistence costs	40,000
Costs for Hosting Events	International symposia and other activities	24,000
Cost of printing	Reports, proceedings	4,000
Others costs	Stationery, paper etc.	1,000
Total		105,000

Contact Information

Questions and inquiries about the focus or stagetic plan may be requested to the deputy secretary of the CDRM:

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Abbrevations

AIJ = Architectural Institute of Japan
CBNDRM = Capacity Building for Natural Disaster Risk Management (subcommittee of CDRM)

CDRM	= WFEO-Committee on Disaster Risk Management
DRM	= Disaster Risk Management
EQDRM	= EarthQuake-related Disaster Risk Management (subcommittee of CDRM)
FEIAP	= Federation of Engineering Institutions of Asia and the Pacific
I3R2	= International Institute for Infrastructure Renewal and Reconstruction
JFES	= Japan Federation of Engineering Societies
JSCE	= Japan Society of Civil Engineers
SCJ	= Science Council of Japan
SC/DRR	= Cross-Cutting Thematic Unit on Disaster Risk Reduction
UN-ISDR	= United Nations International Strategy for Disaster Reduction
UNESCO	= United Nations Educational, Scientific, and Cultural Organization
UN-SDGs	= United Nations - Sustainable Development Goals
WDRM	= Water-related Disaster Risk Management (subcommittee of CDRM)
WFEO	= World Federation of Engineering Organizations