

Asian Conference on Disaster Reduction 2024

Proactive Solutions and Anticipatory Actions for Sustainable
Resilience to the Climate Crisis

12-13 November 2024
Hanoi, Vietnam

Summary

Introduction

Hosted by the Vietnam Disaster and Dyke Management Authority (VDDMA), and in cooperation with the Cabinet Office Government of Japan and the Asian Disaster Reduction Center (ADRC), the Asian Conference on Disaster Reduction (ACDR2024) was organized in Hanoi, Vietnam on 12-13 November 2024.

Adopting the theme, “Proactive Solutions and Anticipatory Actions for Sustainable Resilience to the Climate Crisis”, ACDR2024 featured: 1) a roundtable on resilience to climate crisis; 2) a session on enhancing flood risk information, 3) a session on improving flood countermeasures, and 4) a special session on disasters and disaster management in Vietnam.

ACDR2024 gathered 80 onsite participants including those from fifteen member countries, as well as representatives of international and regional organizations, private sectors, the academic and research institutes. Also 62 participants including those from five member countries attended online.

Opening Session

Mr Nguyen Hoang Hiep (Vice Minister of Agriculture and Rural Development, Government of Vietnam) delivered the first remarks stressing the important of role of ADRC in reducing disaster risk in Asia, especially in the context of climate change. He mentioned that “Through the Asian Conference on Disaster Reduction (ACDR), member countries could share: 1) latest information for greater understanding of risk, 2) approaches to community resilience; and 3) new models and technologies for DRR”.

Mr NUKINA Koji (Assistant Vice Minister for Disaster Management, Cabinet Office, Government of Japan) delivered the second remarks citing the case of Noto Peninsula in Japan which was struck by an earthquake on 1st January 2024. While still recovering from the impact, Noto Peninsula was hit by devastating torrential rain in September 2024. He said that “As major disasters have become more frequent, it is increasingly important to take steps for mitigation ensuring national resilience, providing residents with disaster risk information, improving living conditions in evacuations in the event of a disaster, and implementing Build Back Better initiatives”.

Prof. HAMADA Masanori (Chairman, Asian Disaster Reduction Center) delivered the third remarks via pre-recorded video message, welcoming Brunei Darussalam as the 33rd member-country of ADRC. He mentioned the impacts and challenges of recent disasters, including Noto Peninsulat Earthquake in Japan and Typhoon Yagi in Vietnam, and why there are still so much DRR efforts that ADRC member-countries need to do. He added that “The sessions at ACDR2024 will bring valuable insights and information on strengthening resilience to all member-countries”.

Roundtable: Resilience to Climate Crisis

Fifteen member-countries, namely: Brunei Darussalam, Cambodia, Japan, Republic of Korea, Lao PDR, Malaysia, Mongolia, Myanmar, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam delivered an official statement at the roundtable on “Challenges and Progress in Implementing the Actions Related to Resilience to Climate Crisis in the Sendai Framework for Disaster Risk Reduction”, which was moderated by Ms Doan Thi Tuyet Nga (Director of International Cooperation and Science Technology Department, VDDMA). Overall, the statements highlighted common strategies on strengthening resilience to climate crisis.

Enhance the support mechanisms for climate actions. This includes: 1) ensuring that plans, e.g., DRR Plans, Development Plans, and National Action Plan are aligned with the Sendai Framework for Disaster Risk Reduction; 2) embracing digital transformation in DRR and CCA, such as maintaining a climate-related disaster database systems; 3) widening the platforms for knowledge exchange and information-sharing; 4) promoting risk-informed development based on reliable assessments; and 5) Adopting *All-of-Society* approach in all aspects of DRR-CCA efforts to ensure that “no one is left behind”.

Bolster financing options for mitigation of climate crises. This includes: 1) impact-based forecasting and anticipatory actions; 2) parametric insurance for public assets; 3) catastrophic risk insurance pool for local governments and small businesses; 4) multi-national risk pooling facilities, e.g., Disaster Risk Insurance Facility; and 5) public-private partnerships.

Embrace science and technology to strengthen climate resilience. This includes: 1) adopting science-based and risk-informed approaches to development; 2) exploring the utilization of *AI-driven* disaster risk management systems; 3) availing satellite services and space-based technologies for observing, monitoring, and disseminating information on disaster risk; and 4) integrating scientific and indigenous/traditional knowledge and practices on DRR, ensuring that communities can adapt to new technologies.

Session 1: Enhancing Flood Risk Information

Moderated by Prof. MIURA Fusanori (Yamaguchi University, Japan), this session showcased the latest technologies that could help enhance flood and flash flood risk information.

Associate Prof. Demetrios Eliades (KIOS Center of Excellence, University of Cyprus) presented examples of AI-enabled systems for monitoring and forecasting risk that are useful for flood modeling and flood/water quality risk assessment. Additionally, he presented how Low-Power Wide Area Network (LPWAN) communication technology can be useful in disseminating flood risk information, particularly in areas that have limited access to cellular networks or WiFi.

Prof. SHUMUTA Koji (Center for Asian Studies, Kanagawa University) introduced sensing technologies for disaster response and recovery. For instance, in risk assessment management system for power lifeline (RAMP), various sensors are being utilized to improve the performance of temporal and spatial interpolation.

Prof. MIURA Fusanori (Yamaguchi University, Japan) outlined the current situation of utilizing satellite data for disaster management. He said that there are various forms of cooperation in using satellite data. In the region, there is Sentinel Asia, and in Japan, there is a Consortium for Satellite Earth Observation (CONSEO). However, in delivering the service, publicly-owned and privately-owned satellites work independently. As shown in the result of disaster

prevention drill, independently-provided satellite service is less effective. To make it more effective, a Satellite One-stop System is introduced to optimize the role of satellite in disaster management.

Dr Masita Dwi Mandini Manessa (Lecturer, Geography Department, University of Indonesia) highlighted the role of spatial machine learning in predicting landslides and floods in agricultural systems of Magelang Regency in Indonesia. By using spatial machine learning, it is predicted that approximately 38% of high-productive agricultural lands will be exposed to high flood risk.

Mr Nguyen Xuan Sang (Deputy Director of Agriculture and Rural Development Department, Yen Bai Province, Vietnam) reported the impacts of landslides in Yen Bai Province caused by Typhoon Yagi. Lessons from that experience include the need for improving the technologies for forecasting and early warning systems for landslides.

Mr Hoang Minh Tuan (Head of Disaster Management Administration, Irrigation Sub-Department, Agriculture and Rural Development Department, Cao Bang Province, Vietnam) shared the lessons from responding to Typhoon Yagi in Cao Bang Province. Among these are the need for better technologies for search and rescue operations, including the use of drones.

Session 2: Improving Flood Countermeasures for DRR-CCA

Dr Nguyen Nghia Hung (Deputy Director of Southern Institute for Water Resources Research) moderated this session that focuses on “Improving Flood Countermeasures Based on Analyses of Future Risk for Disaster Risk Reduction and Climate Change Adaptation”. Speakers on this session shared principles and approaches in improving flood countermeasures for DRR-CCA.

Mr SUZUKI Takashi (Advisor for Disaster Risk Management (JICA Expert) at VDDMA, MARD) emphasized the concept of “kaizen”, a Japanese term for continuous learning and improvement (e.g., failure, science, and world). Applying the concept of “kaizen” helps improve flood countermeasures, such as through scientific river improvement and integrated river basin management.

Dr ONO Takahiro (Special Appointed Professor, Tohoku University/General Manager, Tokio Marine Holdings) highlighted the benefits of “ex-ante investment” or pre-investment in disaster risk reduction. Initiatives such as the Business Continuity Plan (BCP) and the Disaster Mitigation Action Plan (Timeline) are examples of ex-ante investment that reduces post-event economic contractions and speed-up post-disaster recovery.

Mr Junha Kim (Head of Team, Ministry of the Interior and Safety, Republic of Korea) reported that the implementation of flood countermeasures in the Republic of Korea include: 1) proactive disaster preparedness by ensuring the readiness of the institution in implementing pre-emptive evacuation to reduce casualties; and 2) collaborative disaster management by engaging all stakeholders in disaster governance.

Ms Angsumalin Angsusingha (Disaster Management Expert, Disaster Management Center, Thailand) shared a case study of flooding situation in Northern Thailand, and how the DDPM had addressed the challenges. She presented the Solution Framework, a community-centered approach, that DDPM applied in addressing flooding situations. Basically, the Solution Framework embraces the community-based disaster risk management (CBDRM) approach.

Mr Le Anh Dung (Director of Irrigation Sub-Department, Agriculture and Rural Development Department, Ha Giang Province, Vietnam) shared the damage caused by Typhoon Yagi in Ha Giang Province. He reported that the impacts were severe, yet the external support for emergency response was limited. To address this challenge, Ha Giang Province will continue to train community-based first-responders to optimize local capacities.

Special Session: Disasters and Disaster Management in Vietnam

This special session was moderated by Mr SUZUKI Takashi (Advisor for Disaster Risk Management, VDDMA, MARD) to provide an overview of the disasters and disaster management in Vietnam. Highlighting floods, flash floods, and landslides in the context of Typhoon Yagi that impacted several provinces in Vietnam in September 2024, this session showed examples of disaster management in the areas of preparedness, prevention and mitigation, response, and recovery. It also showed the diversity of disasters in Vietnam as well as the future direction of ASEAN cooperation, as outlined by the Government of Vietnam.

Mr Nguyen Xuan Tung (Deputy Director, Department of Response and Recovery, VDDMA) reported the situation of flash floods and landslides in the northern mountainous region of Vietnam in the past 10 years (2014-2024). On average, flash floods and landslides cause 62 deaths per year in the past decade, and mostly in the mountainous areas. To reduce future impacts, his recommendations include: strengthen communication systems, raise community awareness, build local capacity for response, detailed regional accurate forecasting, early warning system, and household-level disaster management planning.

Mr Quan Van Viet (Deputy Chief of Office of the Steering Committee for Disaster Prevention and Search and Rescue, Lao Cai Province) reported the impacts of Typhoon Yagi in Lao Cai Province, causing serious damage to people, property, infrastructure, and disrupting the social activities. To effectively address the impacts of similar disaster in the future, he mentioned the following: making the infrastructure more resilient, improving the forecasting and early warning systems, and strengthening data collection and risk analysis.

Mr Luong Khac Kien (Division Head, Irrigation Sub-Department, Agriculture and Rural Development Department, Son La Province) introduced the pilot model for flash flood prevention in Son La Province under the technical cooperation between the Government of Japan and Vietnam. The components of the pilot model, include: 1) early warning system, 2) resettlement and landuse, and 3) construction of Sabo Dam to prevent erosion and flash floods. Sabo Dam is being constructed in one of the planned 12 locations of Nam Pam River, Muong La District, Son La Province, and he hopes that necessary resources will be mobilized to complete the construction in other locations.

Mr Pham Quoc Hung (Director of Irrigation Sub-Department, Agriculture and Rural Development Department, Yen Bai Province) introduced the capacity building on landslide early warning that is being piloted in Tram Tau District, Yen Bai Province under the technical cooperation between the Government of Japan and Vietnam. About 130 households living in the pilot area are oriented on the newly installed early warning systems. The system monitors movement of land mass and provides warning to the community. The data is also transmitted in real time to the office in Yen Bai Irrigation Sub-Department. This system is expected to contribute in increasing community resilience to landslide. Additionally, he mentioned the importance of risk assessment of wide area in Yen Bai Province.

Mr Doan Manh Phuong (Director of Irrigation Sub-Department, Agriculture and Rural Development Department, Quang Ninh Province) reported that Typhoon Yagi had severely impacted the agricultural production affecting the livelihoods of people in Quang Ninh Province. Among the actions to address the challenges, include support for: 1) school tuition of children

and students, 2) needs of agricultural sector, 3) repair of damaged houses, 4) demolition of submerged fishing boats, and 5) developing sustainable aquaculture.

Dr Nguyen Nghia Hung (Deputy Director, Southern Institute for Water Resource Research) presented the challenges in addressing river bank and coastal erosion in the Mekong Delta. Among the causes and risks of river bank erosion are: 1) housing is too close river flow, 2) sand mining, 3) instability of river bank formed by sand and mixed clay, 4) surcharging or loading on river bank, and 5) fish ponds near the main river. Currently several scientific approaches are being conducted but comprehensive measures including environmentally friendly solutions should be discussed and taken to address such erosion, since they are critical issue in the Mekong Delta Region.

Mr Ngo Huu Huy (Centre of Policy and Technology disaster management, VDDMA) presented the Vietnam Disaster Monitoring System (VNDMS), a system that supports disaster prevention and control (DPC) management through data integration and connectivity with various ministries, line agencies, organizations, and local authorities. It enables the analysis and visual display of information and data to provide disaster warnings for agencies, organizations, and the community. The system is developed, managed, and monitored 24/7 by the Centre of Policy and Technology of VDDMA to ensure stable and secure operations as well as timely response.

Ms Dam Thi Hoa (Deputy Director of International Cooperation and Science technology Department, VDDMA) provided an overview of the Ha Long Ministerial Statement on the Strengthening of ASEAN Anticipatory Actions in Disaster Management to show Vietnam's role in international cooperation for disaster risk reduction. The statement emphasized three building blocks for action: 1) Improve risk information, forecasting and early warning systems; 2) Enhance planning, operations, and delivery in delivering anticipatory actions in disaster preparedness and response; and 3) Promote pre-arranged finance for a successful anticipatory action in disaster management.

Wrap-up

Mr SASAHARA Akio (Executive Director, ADRC) wrapped-up the ACDR2024 by highlighting the key insights and recommendations to strengthen resilience to climate crisis: 1) Enhancing the support mechanisms for climate actions; 2) Bolstering the financing options for mitigation of climate crises; and 3) Embracing science and technology to strengthen climate resilience. Among the latest technologies that could help enhance flood risk information are: AI-enabled systems for monitoring and forecasting, Low-Power Wide Area Network (LPWAN) communication, sensing technologies, spatial machine learning, and satellite data services. To improve flood countermeasures, some of the principles and approaches that might useful include: 1) "Kaizen", a Japanese term for continuous learning and improvement; 2) Ex-Ante Investment or pre-investment in disaster risk reduction; 3) Proactive disaster preparedness or institutional readiness; 4) Collaborative disaster management or All-of-Society approach; 5) Solutions Framework, a community-centered approach, such as CBDRM; and 6) Training of community "first responders" to optimize local capacities. Mr SASAHARA mentioned that the special session on disasters and disaster management in Vietnam, which highlighted floods and landslides in the context of typhoon Yagi, demonstrated the state and challenges of disaster management of the country, particularly in the areas of preparedness, prevention and mitigation, response, and recovery. He added that Vietnam Government has invested in international cooperation on "anticipatory action for disaster management" in the ASEAN.

Closing Session

At the closing session, Mr Pham Duc Luan (Director-General of the VDDMA, MARD, Vietnam) said, "Through our cooperation of ADRC, officials at VDDMA/MARD have greater opportunity to be involved in the international environment in Asia through various capacity building

programs and short-term training”.

Mr NUKINA Koji (Assistant Vice Minister for Disaster Management, Cabinet Office, Government of Japan) said, “ADRC is expected to take ever larger roles of the center of promoting the Sendai Framework and hub of wisdoms in investment for disaster risk reduction”.

Prof. MIURA Fusanori (Chairman, Asian Disaster Reduction Center) finally closed the conference mentioning, “Various DRR measures are needed, not only for post-disaster response and recovery, but also for disaster prevention and mitigation through investment and utilization of advance and effective ICT-based initiatives in anticipation of future disasters”.

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