Asian Disaster Reduction Center
2017 ANNUAL REPORT

Foreword

The Asian Disaster Reduction Center (ADRC), which was established in Kobe in July 1998, will celebrate its 20th anniversary this year. Since its founding, ADRC has been focused on promoting multilateral disaster risk reduction cooperation at the community, national, and regional levels all across Asia and the Pacific.

Our activities include exchanges of disaster management experts from government organizations, the collection and dissemination of relevant information, and surveys and research on multilateral disaster risk reduction cooperation. Thus far, as many as 105 officials from 26 member countries have participated in our exchange programs. These interpersonal networks are our most valuable assets when it comes to enabling ADRC to develop and implement future activities intended to improve the resilience of Asian countries.

We have worked in cooperation with our member countries to implement a variety of programs for disaster education, including programs that apply space-based technologies to disaster risk reduction. ADRC has also developed the GLIDE system, which is a practical tool for integrating disaster data and databases archived by organizations around the world.

Even as we continue these activities, this anniversary provides an opportune time for ADRC to discuss the strategies and initiatives we will adopt over the next 20 years. As ADRC chairman, I sincerely appreciate your cooperation in these efforts, and I invite you to join us in promoting DRR in Asia so that together we can build more resilient societies for all.

March 2018
Masanori Hamada, Chairman
Asian Disaster Reduction Center

Contents

1. Asian Disaster Reduction Center

1-1. History of the Establishment of ADRC

Asian Disaster Reduction Center (ADRC) opened its office in Kobe, Japan, on July 30, 1998. The major steps leading up to formation of ADRC are described below.

(1) International Decade for Natural Disaster Reduction (IDNDR)

At its 42nd General Assembly in December 1987, the United Nations designated the 1990s as the International Decade for Natural Disaster Reduction, and adopted a resolution aiming to sharply reduce the damage caused by natural disasters around the world, particularly in developing countries, through joint international action.

(2) World Conference on Natural Disaster Reduction

In May 1994, the UN held the World Conference on Natural Disaster Reduction in Yokohama, Japan, to conduct an interim review of the decade-long IDNDR initiative and to propose an action plan for the future. At the meeting, the "Yokohama Strategy for a Safer World" was adopted, highlighting the importance of international cooperation in regions that share common types of disasters and disaster reduction measures. Disaster reduction activities have since been promoted throughout the world based on this strategy.

(3) Ministerial-level Asian Natural Disaster Reduction Conference

As the first step toward regional cooperation under the Yokohama Strategy, the IDNDR Secretariat organized a meeting in Kobe in December 1995 to formulate a policy on disaster reduction cooperation in Asia. Cabinet members in charge of disaster reduction from 28 countries attended the meeting, which concluded with the adoption of the Kobe Disaster Reduction Declaration. This declaration consists of ideas for promoting international cooperation in disaster reduction, including a Japanese proposal to launch a feasibility study on a system for coordinating disaster reduction efforts in the Asian region.

(4) Asian Natural Disaster Reduction Experts Meeting

The government of Japan and the IDNDR Secretariat jointly organized an expert meeting in October 1996 to hash out how a central disaster reduction system, as stated in the Kobe Disaster Reduction Declaration, might be created for the Asian region. The meeting was attended by key personnel in the disaster reduction bureaus of 30 countries, and they agreed to study the creation of the tentatively named "Asian Disaster Reduction Center" to serve as a secretariat for promoting activities under the proposed system.

(5) Asian Disaster Reduction Cooperation Promotion Meeting

The government of Japan and the IDNDR Secretariat jointly organized a meeting in Tokyo in

June 1997 to discuss activities to be undertaken by the proposed center for disaster reduction system. Once again, key personnel from the disaster reduction bureaus of 23 countries attended the meeting, whose overall goal was to promote cooperation in disaster reduction efforts through specific actions. A proposal was made at the meeting to establish an center in Japan to serve as the secretariat for the proposed system.

(6) Establishment of ADRC

With momentum gathering from this series of meetings, the government of Japan discussed the organization, budget, and other aspects of the proposed office with the other countries involved. With the cooperation of Hyogo Prefecture, the Asian Disaster Reduction Center was officially established in Kobe on July 30, 1998.

1-2. Composition

ADRC was established in Kobe, Hyogo prefecture, in 1998, with mission to enhance disaster resilience of the member countries, to build safe communities, and to create a society where sustainable development is possible. ADRC works to build disaster resilient communities and to establish networks among countries through many programs including personnel exchanges in this field.

The Center addresses this issue from a global perspective in cooperation with a variety of UN agencies and international organizations/initiatives, such as the United Nations Secretariat for International Strategy for Disaster Reduction (UNISDR), the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

At the outset, ADRC was comprised of 22 member countries, four advisor countries, and an observer organization. Armenia joined later, in August 2000, followed by the Kyrgyz Republic in July 2002, Pakistan in July 2005, and Yemen and Bhutan in December 2007, Azerbaijan in 2009, Maldives in 2010, and the Republic of Iran in 2012 bringing the number of member countries to 30. In March 2004, the US joined as the fifth advisor country to ADRC.

30 Member Countries: Armenia, Azerbaijan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Islamic Republic of Iran, Japan, Kazakhstan, Republic of Korea, Kyrgyz, Lao PDR, Malaysia Maldives, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Russian Federation, Singapore, Sri Lanka, Tajikistan, Thailand, Uzbekistan, Viet Nam, Yemen
5 Advisor Countries: Australia, France, New Zealand, Switzerland, United States of America
Observer: Asian Disaster Preparedness Center (ADPC)

Table.1-2-1. Counterpart List of member countries

country	organization
Armenia	National Survey for Seismic Protection Agency (NSSP)
Azerbaijan	Ministry of Emergency Situations
Bangladesh	Ministry of Disaster Management & Relief
Bhutan	Ministry of Home & Cultural Affairs
Cambodia	The National Committee for Disaster Management (NCDM)
China	National Disaster Reduction Center of China
India	Ministry of Home Affairs
Indonesia	National Agency for Disaster Management (BNPB)
Iran	National Disaster Management Organization (NDMO)
Japan	Cabinet Office
Kazakhstan	Ministry of Internal Affairs
Rep. of Korea	Ministry of Public Safety and Security
Kyrgyz	Ministry of Emergency Situations
Laos	National Disaster Management Office (NDMO)
Malaysia	National Security Council, Prime Minister's Department
Maldives	National Disaster Management Center
Mongolia	National Emergency Management Agency
Myanmar	Ministry of Social Welfare, Relief and Resettlement
Nepal	Ministry of Home Affairs
Pakistan	National Disaster Management Authority（NDMA）
Papua New Guinea	Department of Provincial and Local Government Affairs
Philippines	Department of National Defense
Russia	Ministry of Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters
Singapore	Singapore Civil Defence Force
Sri Lanka	Ministry of Disaster Management
Tajikistan	Committee of Emergency Situations and Civil Defense
Thailand	Ministry of Interior
Uzbekistan	Ministry of Emergency Situations
Viet Nam	Ministry of Agriculture and Rural Development
Yemen	Ministry of Water & Environment

Fig.1-2-1. Member Countries

1-3. Main Activities

ADRC engages in the following basic activities:

(1) Information Sharing

- Provision of disaster information
- Sentinel Asia – A space-based disaster management support system in the Asia-Pacific region
- Promotion of the GLobal unique disaster IDEntifier (GLIDE) system
- Organization of international meetings

(2) Human Resource Development

- Organizing conference, workshops, and trainings on disaster risk reduction
- Program for inviting visiting researchers from member countries

(3) Building Community Capabilities

- Development and dissemination of tools for encouraging community involvement
- Development of Public and Private Partnership and Business Continuity Plan (BCP) for small and medium-sized enterprises
- Assistance with the activities to further strengthen all stakeholder coordination mechanisms

2. Highlights of 2017/2018

2-1. Asian Conference on Disaster Reduction 2017

Information sharing among DRR practitioners and organizations is indispensable for enhancing efforts for disaster risk reduction in disaster-prone Asia. ADRC convenes an annual conference attended by disaster risk management officials from member countries and experts from international organizations to promote sharing of good practices and information, and to enhance further networks in Asia. The Asian Conference on Disaster Reduction (ACDR) 2017 was held in Baku, Republic of Azerbaijan during 2-3 October 2017. The conference was jointly hosted by the Government of Azerbaijan, the Government of Japan, and ADRC. The ACDR2017 was attended by 68 participants including high level government officials from 18 countries, as well as representatives of international and regional organizations, the academic community, and the private sector.

Fig.2-1-1. Participants of ACDR2017

This year's ACDR consisted of three sessions focusing on the following themes:

Session 1: Implementation of the Sendai Framework for DRR --- Develop national and local DRR strategies

Session 2: Effective Emergency Response to Survive Mega Disasters

Session 3: Advanced Technologies Facilitating DRR and CCA

The conference began with opening remarks by Dr. Masanori Hamada, ADRC Chairman,

followed by remarks from H.E. Mr. Kamaladdin Heydarov, Minister of Emergency Situations, Government of the Republic of Azerbaijan, H.E. Mr. Mamoru Maekawa, Vice Minister, Cabinet Office, Government of Japan, and Mr. Timothy Wilcox, Programme Management Officer, UNISDR Regional Office for Asia and the Pacific.

The Session one examined the status of Sendai Framework implementation in Asia, particularly what priority activities were undertaken to enhance understanding of disaster risk, what policies and strategies were put in place to intensify DRR efforts, and how past lessons were integrated and mainstreamed in the government's DRR strategies, plans, and programs.

The session two dwelt on how to further promote effective emergency response, with emphasis on search and rescue, for extreme scenarios like mega-disasters or small-scale local rural disasters. It examined: what improvements in human resources development (HRD) programs are needed to make search and rescue effective in the face climate change, urbanization, and poverty; how to enhance search and rescue capacity beyond designated borders; and how to leverage support from the private sector in the area of search and rescue.

This session three further explored the application of advanced technologies to facilitate DRR and CCA. It looked into how the new innovative tools can be brought down to the community level, and to ensure that these are user-friendly and accessible.

Lastly, Mr. Badral Tuvshin, Chief/Major General, National Emergency Management Agency, Mongolia, introduced the preparatory process for the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR), co-hosted by the Government of Mongolia and UNISDR in 2018. The member countries expressed support to the AMCDRR and to track progress of the actions recommended in this conference, and also confirmed that after the AMCDRR, the ACDR2018 will be held in Awaji, Hyogo prefecture, Japan for the year of the ADRC's 20th anniversary, and ADRC invited member countries to explore its future activities throughout the preparatory process.

The ACDR2017 was a great success thanks to the important contributions of all the speakers and the active involvement of all participants. The ACDR2017 documents and the final conference summary are available on the ADRC website at http://www.adrc.asia/acdr/2017_index.html.

2-2. Applying Space-Based Technology and Information and Communication Technology to Strengthen Disaster Resilience

2-2-1. Background and Objectives

ADRC jointly conducted with AIT and RESTEC, Asian Development Bank (ADB) Technical Assistant "Applying Space-Based Technology (SBT) and Internet and Communication Technology (ICT) to Strengthen Disaster Resilience" at Armenia, Bangladesh, Fiji and the Philippines.

2-2-2. Overall methodology

Create a basic map, hazard map and evacuation map of the community by using Open Street Map (OSM) based mobile application. If actual disaster occurs, crisis mapping and supporting emergency response can be done.

The satellite image is used for creating a basic map and for estimation damage after disaster, and these information are used for emergency activities in the local government's GIS via the server. Furthermore, it is used for disaster reduction, emergency, and recovery activities at the community level.

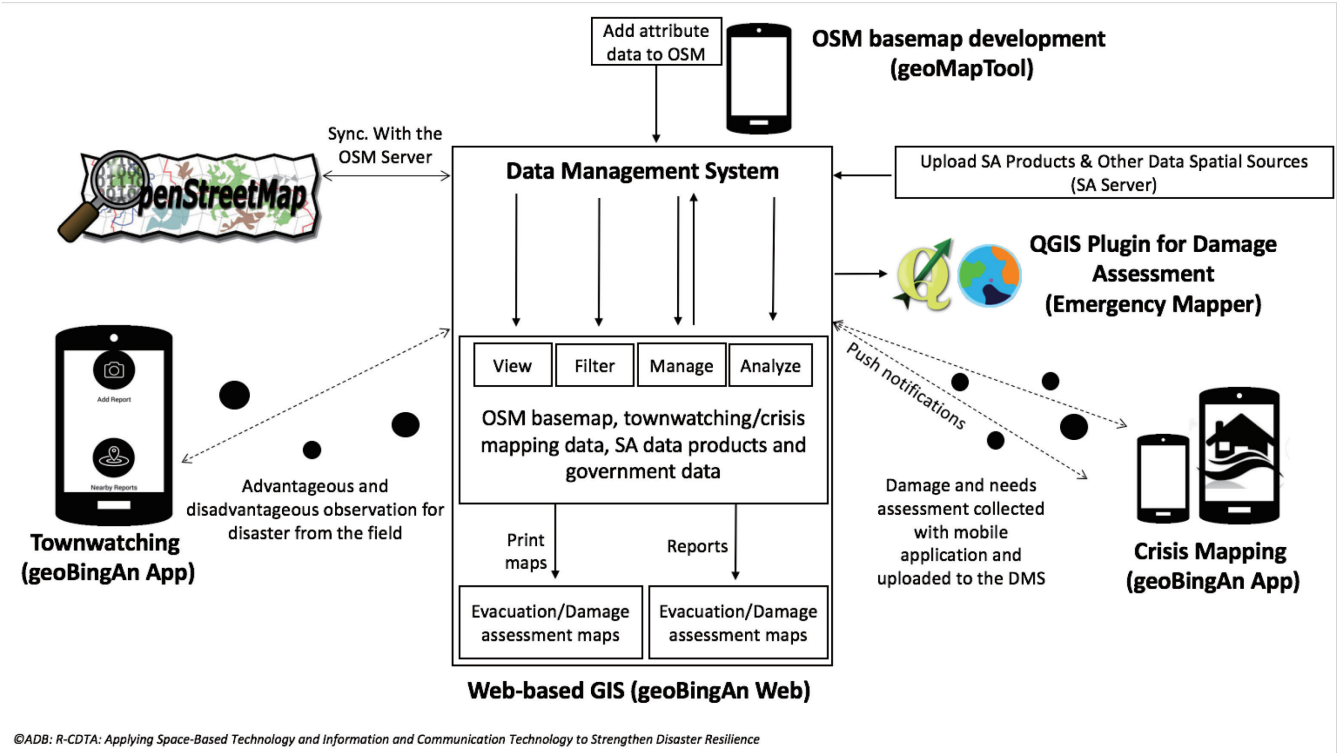


Fig.2-2-1. Overall methodology

2-2-3. Duration

Project period was 22 months from October 2015 to July 2017.

The regional kick-off meeting with the governmental officials of four pilot project countries (Armenia, Bangladesh, Fiji, and Philippines) was held at AIT, Thailand, in December 2015. Throughout 2016, data imputing and the Town-Watching training were conducted in each country. And the software was developed during 2016, then utilized for the Town-Watching and Drill from the beginning of 2017. The final meeting with the governmental DRR officials was held with confirmation of further utilizations of the solution developed by the project.

Fig.2-2-2. Mock Dill in Fiji with Mobile app.
(Source: Fiji Times, 5 June 2018)

2-2-4. Further Contribution to member countries

After the project, one large scale mock drill was conducted in Fiji.

The application developed as an outcome of this project could be applied to other member countries in the future and expected to contribute to strengthen DRR at the community level in each member country.

3. Collection and Dissemination of Disaster Information

ADRC has been disseminating a wide range of information related to disaster risk reduction on its website (http://www.adrc.asia) aiming at ensuring appropriate disaster response, mitigation, and preparedness activities.

3-1. Disaster Risk Reduction Activities of Member Countries

With assistance from its 30 member countries, ADRC has been collecting information on systems, plans, and specific measures of each country's disaster risk reduction as well as the situation of natural disasters. ADRC has also been collecting information from related materials, various countries/organizations and through Visiting Researchers from the ADRC member countries and UNOCHA Office in Kobe.

ADRC will continue collecting and sharing information on the following items mainly:

1) Disaster management systems (legal frameworks, organizations, basic plans, and disaster management manuals), 2) Experiences of disaster response, and 3) Information on natural disasters (descriptions of natural disasters such as earthquakes, floods, cyclones, etc., and resulting damages).

3-1-1. Information Collection from Member Countries

In fiscal year 2017, as in the previous year, ADRC collected disaster risk reduction-related information on member countries through the following methods.

(1) Information provided from ADRC Member Countries

Besides the voluntary provision from the member countries, ADRC collected the information on systems, plans, and specific measures of each country's disaster reduction as well as situations of ongoing natural disasters through Visiting Researchers (VR).

(2) Collecting Information through Participation in International Conferences

ADRC has been working to collect disaster risk reduction-related information about current status, challenges, policies, actions and others in related countries and organizations. ADRC held, in particular, the Asian Conference on Disaster Reduction 2017 in Baku, Azerbaijan, October 2017. And ADRC had been working to provide and share the information such as national or local DRR strategies on implementation of the Sendai Framework, the effective emergency response to survive mega disasters and advanced technologies facilitating DRR and climate change adaptation.

(3) Utilization of Internet

Taking advantage of internet, ADRC has been collecting disaster related information efficiently. Internet will be more important to facilitate technical support and construct disaster information databases. Internet also helps ADRC to collect related information provided by

academic research institutions and international organizations. Recently, ADRC has using Facebook as one of major social network services for providing latest activities of Visiting Researchers. In fiscal year 2017, ADRC continued gathering information on disaster risk reduction systems of member countries through requesting information, field surveys, international conferences, and internet. Furthermore, ADRC updated country reports in cooperation with Visiting Researchers.

Table 3-1-1lists the reports provided by counterparts in member countries. All these reports are made available on ADRC website. Over recent years, disaster risk management organizations in many countries have been actively promoting information dissemination on the internet. ADRC website developed direct links to these websites which offer access to the latest information.

Table.3-1-1. List of reports from ADRC member countries

Country	Year prepared
Armenia	2001, 2002, 2003, 2005, 2006, 2010, 2012, 2015, 2016, 2017
Azerbaijan	2011, 2014
Bangladesh	1998, 1999, 2001, 2003, 2005, 2006, 2010, 2011, 2013
Bhutan	2008, 2013, 2014, 2017
Cambodia	1998, 1999, 2002, 2003, 2005, 2006, 2013
China	1998, 1999, 2005, 2006, 2012
India	1998, 1999, 2002, 2005, 2006, 2008, 2012, 2015
Indonesia	1998, 1999, 2002, 2003, 2004, 2005, 2006, 2012, 2016
Iran	2013
Japan	1998, 1999, 2002, 2005, 2006, 2012
Kazakhstan	1998, 1999, 2002, 2005, 2006
Korea	1998, 1999, 2001, 2002, 2005, 2006, 2008
Kyrgyzstan	2005, 2006, 2012
Laos	1998, 1999, 2003, 2005, 2006
Malaysia	1998, 1999, 2003, 2005, 2006, 2008, 2009, 2011
Maldives	2013, 2014, 2015
Mongolia	1998, 1999, 2002, 2005, 2010, 2011, 2013
Myanmar	2002, 2005, 2006, 2013

Nepal	1998, 1999, 2005, 2006, 2009, 2010, 2011, 2014
Pakistan	2005, 2006, 2009, 2015, 2016, 2017
Papua New Guinea	1998, 1999, 2005, 2006
Philippines	1998, 1999, 2002, 2003, 2005, 2006, 2009, 2010, 2011, 2012, 2014, 2016, 2017
Russia	1998, 1999, 2003, 2005, 2006
Singapore	1998, 1999, 2001, 2002, 2003, 2005, 2006
Sri Lanka	1998, 1999, 2003, 2005, 2006, 2009, 2010, 2011, 2014, 2015,2016
Tajikistan	1998, 1999, 2003, 2005, 2006
Thailand	1998, 1999, 2003, 2004, 2005, 2006, 2008, 2010, 2011, 2012, 2016, 2017
Uzbekistan	1998, 1999, 2005, 2006, 2013, 2015
Vietnam	1998, 1999, 2005, 2006, 2017
Yemen	2009, 2012, 2014

Country Reports includes the following topics provided by each member country.

I. Natural Hazards in the Country
  1.1 Natural Hazards Likely to Affect the Country village
  1.2 Recent Major Disasters
    (Basic data of disasters, damage situation, response and recovery information)

II. Disaster Management System
  2.1 Administration System
  2.2 Legal System and Framework
  2.3 Structure of Disaster Management
  2.4 Priorities on Disaster Risk Management

III. Disaster Management Strategy, Policy and Plan

IV. Budget Size on National Level

V. Progress of the Implementation of Hyogo Framework for Action (HFA)

VI. Recent Major Projects on Disaster Risk Reduction

VII. Counterparts of ADRC

3-1-2. Natural Disaster Data Book

(1) Background

Past disaster records are critical data in policy making, review, survey and analysis of disaster management plan. ADRC concluded MOU on disaster data utilization with the Centre for Research on the Epidemiology of Disasters (CRED) and has conducted analyses on disaster impacts based on the database, EM-DAT maintained by CRED. For instance, 20th Century Data Book on Asian Natural Disasters, and its revision released in 2000 and 2002 respectively featured disasters which hit its member countries while annual Natural Disaster Data Book covers disaster characteristics in the world.

ADRC continues to provide basic data on natural disasters and making efforts to facilitate use of data.

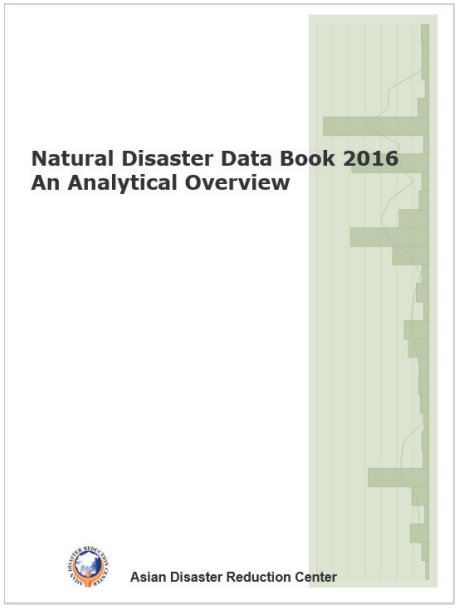
(2) Natural Disaster Data Book 2016

This section presents a summary of Natural Disaster Data Book 2016, which covers regional and disaster-specific issues of the year and long term.

The following Figures 3-1-2 and Tables 3-1-3 depict the results of analyses of national disaster and impacts in 2016 and in the long term.

According to EM-DAT, 350 natural disasters occurred in 2016 worldwide, killing 10,273 people and affecting over 204 million people. The estimated amount of economic damage came close to US$147.4 billion.

In 2016, the earthquake that hit Ecuador in April brought about serious damages to the country. The disaster claimed nearly 670 people. The storm that hit the United States in January has the largest affected people in the world with over 85.0 million. On the other hand, the flood that hit China in June caused the largest economic damage worth US$2.2 billion, which ranked the highest.



By region, Asia is ranked the highest in the indices of disaster occurrences, the number of people killed and economic damage. Asia accounts for 45.1 percent in occurrences; number of people killed, 50.5 percent; and amount of economic damage, 49.5 percent. As for the number of people affected, Americas topped by 46.4 percent.as seen in Figure 3-1-2 and Table3-1-1.

By disaster types, flood is dominant in occurrence, killed, and economic damage at 45.7 percent, 45.3 percent, and 38.7 percent, respectively, while storm tops in number of people affected by 46.0 percent.

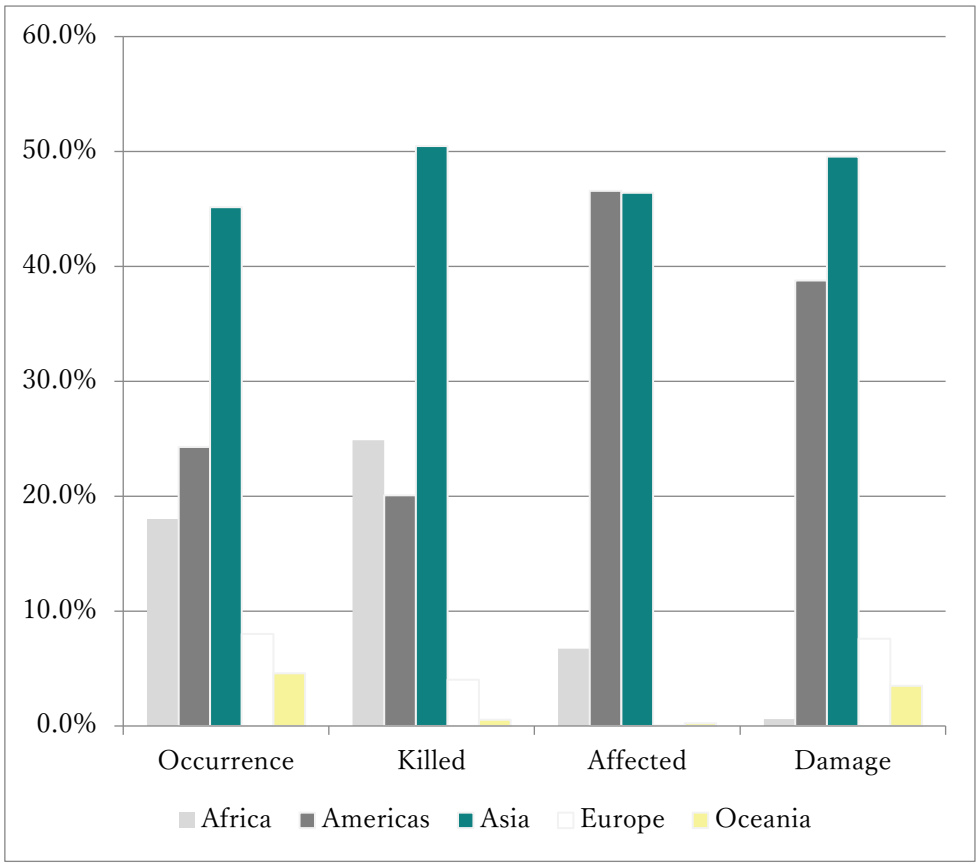


Table.3-1-2. Impacts of Natural Disasters by Region 2016

Fig.3-1-1. Impacts of Natural Disasters by Region 2016

Region	*Impact*							
	Occurrence	(share in %)	Killed	(share in %)	Affected	(share in %)	Damage (US$ million)	(share in %)
Africa	63	(18.0%)	2,554	(24.9%)	13,760,813	(6.7%)	867	(0.6%)
Americas	85	(24.3%)	2,062	(20.1%)	95,038,986	(46.6%)	57,148	(38.8%)
Asia	158	(45.1%)	5,186	(50.5%)	94,718,029	(46.4%)	73,017	(49.5%)
Europe	28	(8.0%)	415	(4.0%)	93,426	(0.0%)	11,179	(7.6%)
Oceania	16	(4.6%)	56	(0.5%)	490,911	(0.2%)	5,160	(3.5%)
Total	350	(100.0%)	10,273	(100.0%)	204,102,165	(100.0%)	147,371	(100.0%)

3-1-3. Disaster Information Sharing Using GLIDE Numbers

GLIDE is the acronym for the GLobal unique disaster IDEntifier system, in which commonly formatted but unique numbers are assigned to disasters all over the world. The GLIDE system was first proposed by ADRC and has been adopted and used by more than 20 international organizations and research institutes.

There are many organizations around the world that design and develop their own disaster databases freely accessible online. When a disaster occurs, information is distributed over the Internet not only by organizations in the affected countries but also by organizations and the mass media in other countries. Whenever a disaster occurs in any part of the world, ADRC collects information from websites of relevant organizations and worldwide news agencies, or by sending e-mails to contact persons in the affected area. Over the course of its experience, ADRC came up against several problems in collecting disaster information using these methods, including the following.

① It requires considerable manpower to search Internet for websites of relevant individual organizations every time a disaster occurs.
② There is no standardized naming protocol for disasters. As many different names are given to a certain single disaster by various organizations, even search engines such as Google or Yahoo sometimes return no results.
③ Website links may be lost, once the structure of particular organization's database or website is modified.

The GLIDE system offers a solution to these problems. It will significantly improve the efficiency with which information on historical and ongoing disasters can be retrieved from databases and websites.

At the Global Disaster Information Network (GDIN) Conference held in Canberra, Australia in March 2001, ADRC proposed to develop a standardized coding system for managing information on disasters around the world. This proposal was accepted and implemented as a pilot project by the GDIN. In 2004, glidenumber.net was jointly developed by ADRC and OCHA ReliefWeb, with technical assistance provided by LaRED. It is designed to issue new GLIDE numbers to disasters immediately after they occur. Moreover, ADRC, the CRED, IRI/Columbia University, the USAID/OFDA, the WMO, IFRC, UNDP, and ISDR Secretariat have agreed to use the GLIDE number format as the standard for assigning disaster identification numbers.

3-2. Database on Disaster Risk Reduction

3-2-1. Latest Disaster Information

When a natural disaster occurs, information on the damage situation of the affected area, emergency response and relief is collected and disseminated through media, national and local governments, international organizations, research institutions and civil societies in the affected countries and throughout the world. Such information was once provided largely individually, it took time to get all the necessary information, whch prevented from immediate data collection activities in case of emergency.

Since its inception in 1998, ADRC has developed a database of the latest disaster information obtained from various sources. Summarized information with direct links to the sources enables rapid search and retrieval of information. In particular, the database provides a summary of disasters (dates, locations, and overviews), damage situations, relevant links categorized as reports/articles, geographic data, emergency relief information, urgent reports from ADRC member countries and graphic information. Such information is continually updated on its website.

Latest Disaster Information shows information flow of ADRC website starting from the top page to related information. In the top page, the disaster appears as the latest disaster, linked to detailed information . The detailed information has links to the corresponding GLIDE number, space imagery obtained in Sentinel Asia framework, and national disaster management organization of the country, when it is ADRC's member country (Figure 3-2-1 to 3-2-2).

The information originates mainly from announcements of disaster relevant organizations including those in ADRC member countries, situation reports from the UNOCHA ReliefWeb, International Federation of Red Cross and Red Crescent Societies (IFRC), and media reports. The Latest Disaster Information site is interlinked with the disaster management information of ADRC website, serving as a portal to various kinds of information. In addition, the database connected to the link to the other site "JAXA DMSS" to enhance the value to ADRC's web site using the satellite image data taken at the affected site after the natural disasters when the emergency satellite observation was conducted.

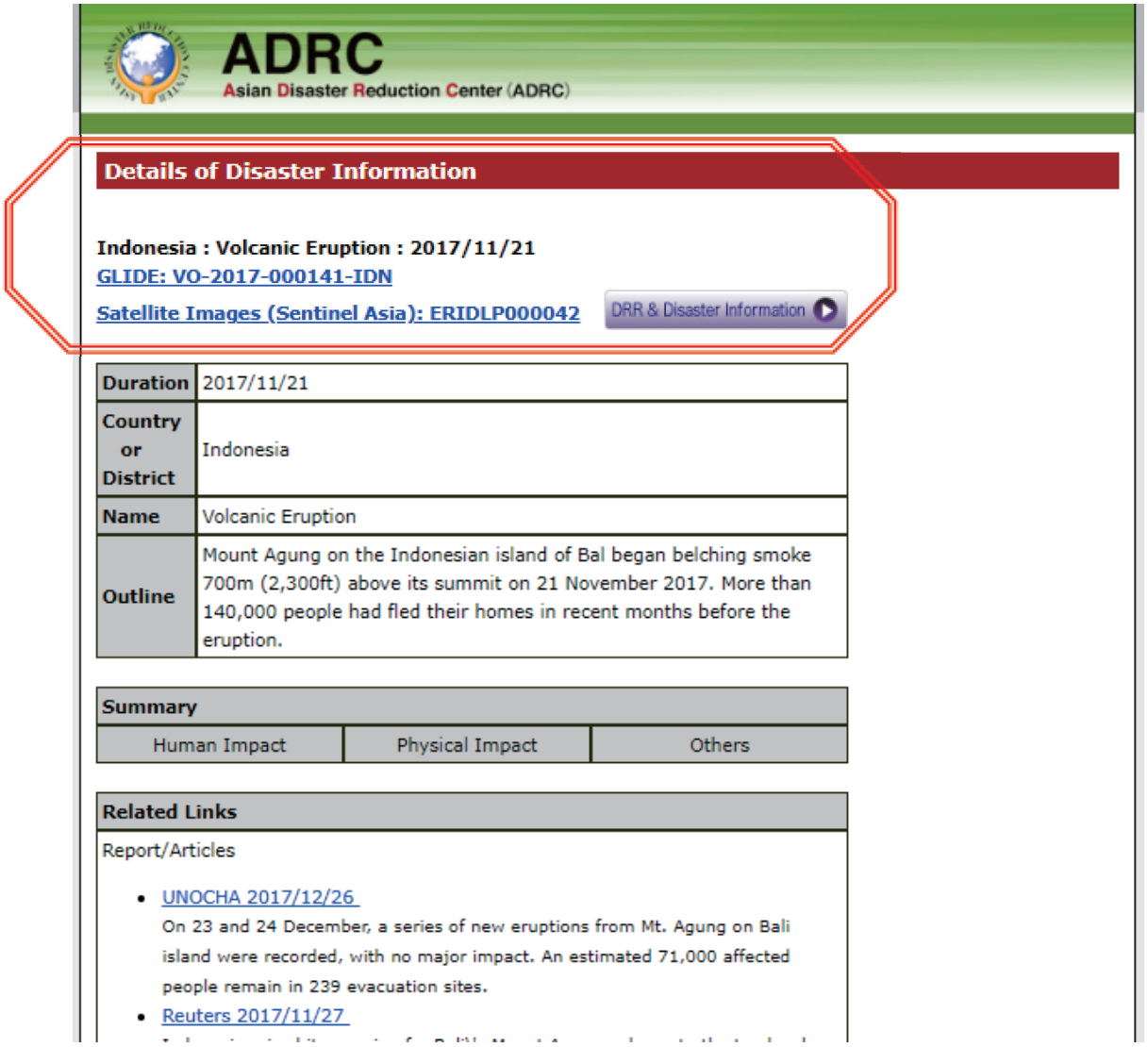


Fig.3-2-1. Latest Disaster Information on the Volcanic Eruption in Indonesia

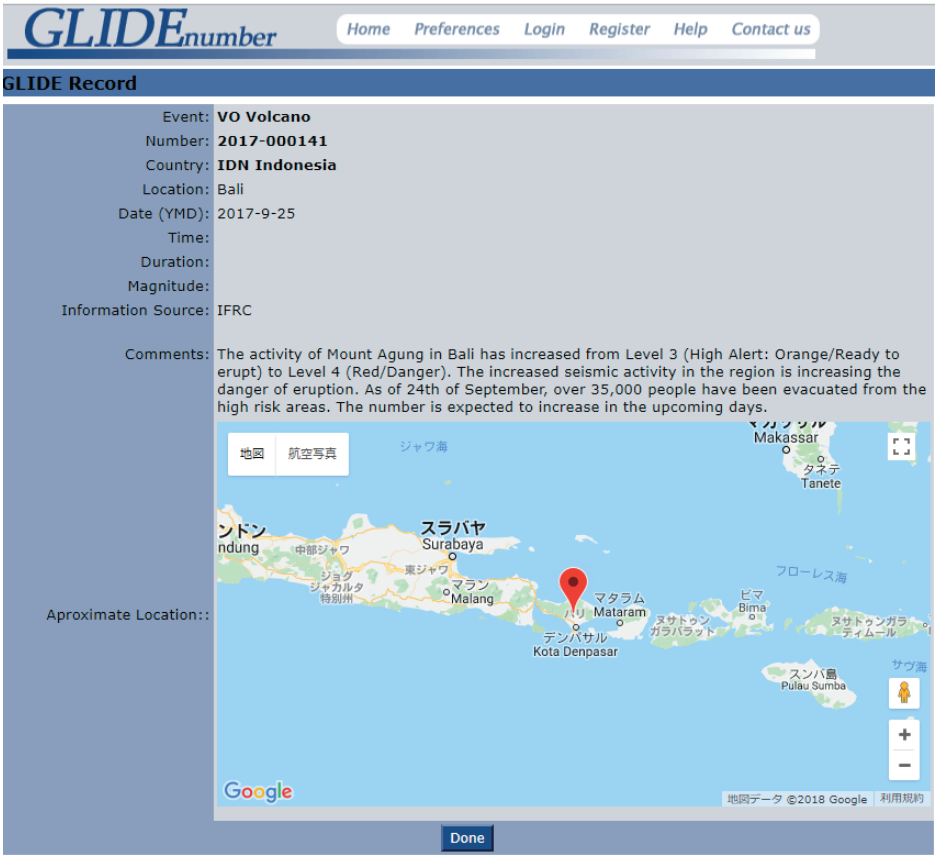


Fig.3-2-2. GLIDE Number of the disaster

Fig.3-2-3. Satellite imageries of the disaster in Sentinel Asia

3-2-2. Asian Disaster Reduction Center Newsletter: ADRC Highlights

ADRC has been using Internet and e-mail to share information with its counterparts in the member countries, and other relevant parties. As one of its important tools for information dissemination, ADRC has been issuing the newsletter “ADRC Highlights” since 1 June 1999. It had been issued twice a month until FY 2007, and has been issued once a month since the renewal of its design in FY 2008.

Fig.3-2-4. ADRC Highlights
(December 2017: Japanese edition, English edition, Russian edition)

The newsletter is made available on the website. It is also e-mailed in English, Russian and Japanese to ADRC counterparts and former visiting researchers, former GLobal IDEntifier number (GLIDE) visiting researchers, participants in the past ADRC annual meetings, visitors to ADRC, trainees in JICA's training courses which ADRC were involved in, and participants in international conferences ADRC took part in to strengthen relations with. Also ADRC registers e-mail addresses of those who wish to subscribe the newsletter upon the receipt of request e-mail. The numbers of subscribers in English, Russian and Japanese, are 2,168, 223 and 903 respectively as of January 2017.

The contents include articles on the latest ADRC activities, reports on international conferences, and other events which ADRC staff attended and gave presentations in, as well as national reports by ADRC visiting researchers from member countries.

Table.3-2-1. Headlines from ADRC Highlights (FY2017)

Vol.	Main Articles
289	✓ Participation in the APEC Emergency Preparedness Working Group
290	✓ Evacuation Drills and Former ADRC Visiting Researchers in Armenia
291	✓ Observations on Community-Based Disaster Risk Reduction Efforts in Kobe City by the Study Team led by Mr. Gu Zhaoxi, Vice Minister, Ministry of Civil Affairs, China ✓ 12th Annual Meeting of the Working Group on Disaster Risk Reduction by the UNESCAP/WMO Typhoon Committee
292	✓ Global Platform (GP) for Disaster Risk Reduction 2017
293	✓ JICA Training Course: Comprehensive Disaster Risk Reduction for Central Asia and the Caucasus 2017
294	✓ Applying Space-Based Technology and Information and Communication Technology to Strengthen Disaster Resilience ✓ ADRC Visiting Researcher Report - Mr. Wangchuk Tashi (Bhutan)
295	✓ ADRC Visiting Researcher Report - Ms. Hasmik Kirakosyan (Armenia) ✓ ADRC Visiting Researcher Report - Mr. Marc Gil P. Calang (Philippines) ✓ Report from ADRC Internship - Mr. Kazuyoshi Morimoto
296	✓ 24th Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-24)
297	✓ The 7th Annual UN-SPIDER Conference
298	✓ Happy New Year 2018 -Masanori HAMADA, Chairman, ADRC ✓ ADRC Visiting Researcher Report - Mr. Brohi Nasur Ullah (Pakistan) ✓ ADRC Visiting Researcher Report - Ms. Srikwan Puntatip (Thailand)
299	✓ ADRC Visiting Researcher Report - (tbd) - Mr. Pham Hong Thanh(Vietnam) ✓ Participation in International Conferences Fifth Joint Project Team Meeting for Sentinel Asia STEP3 (JPTM2018) Held in Taiwan
300	✓ JICA Training Course (tbd)

3-3. Providing Disaster Information by Utilizing Earth Observation Satellite

3-3-1. Sentinel Asia

(1) Objective

ADRC continues to participate in the Sentinel Asia project. The project was launched in 2006 with an objective of establishing a disaster risk management system by making the use of satellite images in Asia. ADRC functions as the focal point to receive emergency observation request in the framework of the Sentinel Asia. Upon receiving a request, ADRC decides whether the request is appropriate or not and whether the emergency observation should be implemented mainly for the assessment of damages and casualties or not. Based on its own judgment, ADRC will forward the request to five space agencies, namely, the ISRO (India), the JAXA (Japan), the GISTDA (Thailand), the KARI (Korea), NARL (Taiwan), CRISP (Singapore) participating in the Sentinel Asia Project.

In accordance with the Cooperation Agreement between the United Nations Office for Outer Space Affairs (UNOOSA) and ADRC signed on 4 June 2009 on the establishment of ADRC UN-SPIDER Regional Support Office, ADRC UN-SPIDER Regional Support Office has been established within ADRC premises and operated by ADRC staff members as coordinators of ADRC UN-SPIDER RSO.

ADRC, as a UN-SPIDER RSO, should thus work toward ensuring the successful completion of the UN-SPIDER Work Plan thereby facilitating countries in Asia to have access to and develop the capacity to use space-based information to support the full disaster management cycle.

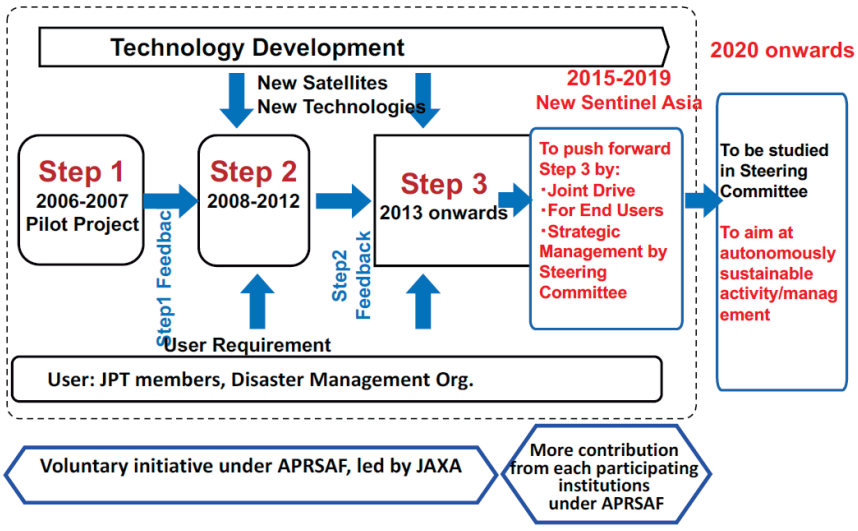


Fig.3-3-1. Flow of emergency observation

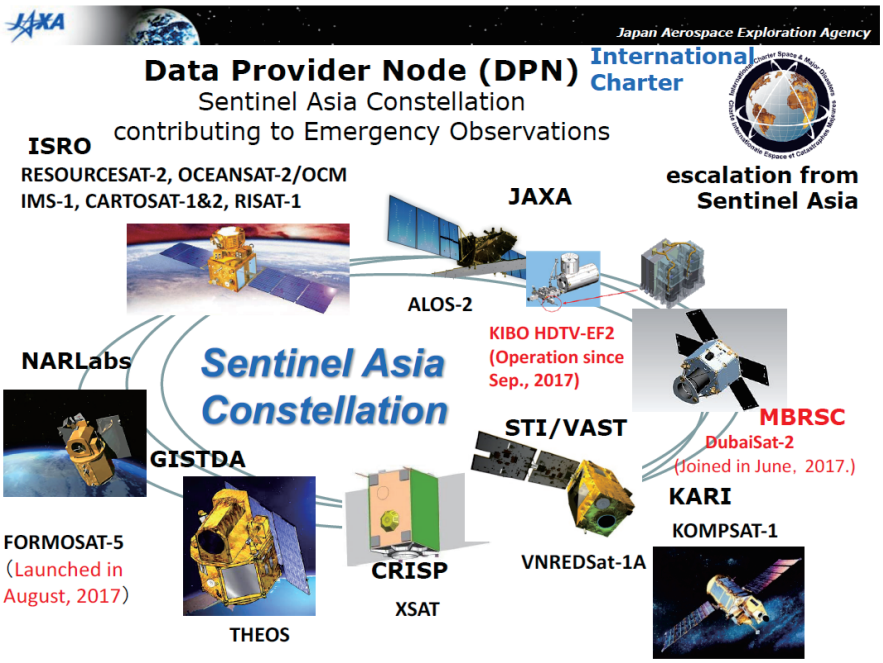


Fig.3-3-2. Data Provider Nodes of Sentinel Asia

(2)Implementation of Sentinel Asia Step3

A step-by-step approach for the implementation of Sentinel Asia was adopted as follows:

Step1: Implementation of the backbone Sentinel Asia data dissemination system

Step2: Expansion of the dissemination backbone with new satellite communication systems

Step3: Establishment of a comprehensive disaster management support system

At APRSAF-19 (Asia-Pacific Regional Space Agency Forum, APRSAF) held in Kuala Lumpur in December 2012, successful completion of Sentinel Asia Step2 was declared. Sentinel Asia Step3 has the following concept, based on experiences in Step2 and user requirements.

- A basic continuation of Step2 activities
- Expansion from response (in Step1 and Step2) to cover the mitigation/preparedness and recovery phases in the disaster management cycle (Fig. 3-3-1)
- Participation of various satellites: earth observation satellites, communication satellites, and navigation satellites
- Further collaboration for operation
- Further utilization of human networking through capacity building and outreach

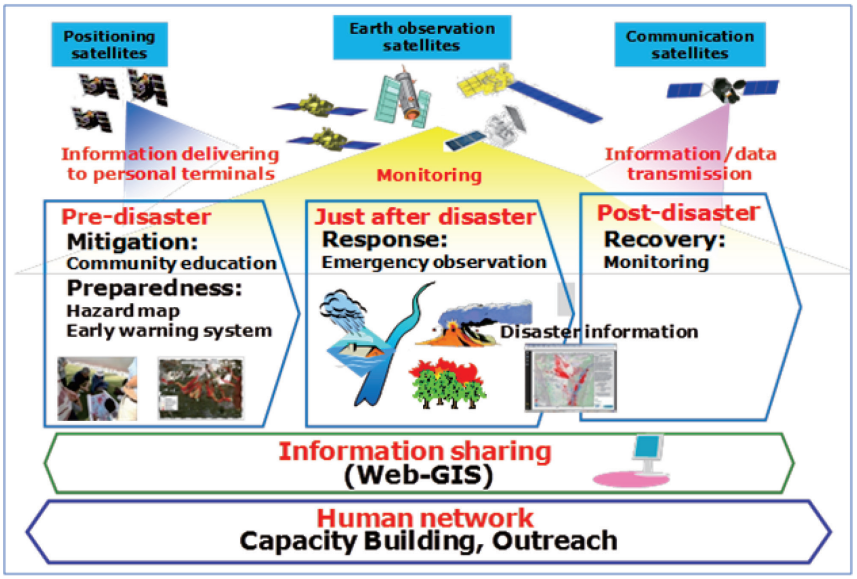


Fig.3-3-3. Concept of Sentinel Asia Step3

(3) Emergency Observation Activities for this year

Despite the year to year changes in the number of requests, the ratio of activated numbers remains stable at around 80%. After a peak of 2010-2011, however, the number of requests reduced after ALOS, a laser sensor, had stopped in May 2011, which might had affected the number of requests. From January to December 2017, 33 emergency observations were requested, 31 of which were undertaken, after the operation of ALOS-2, and succeeding satellite of ALOS had started from November, 2014.

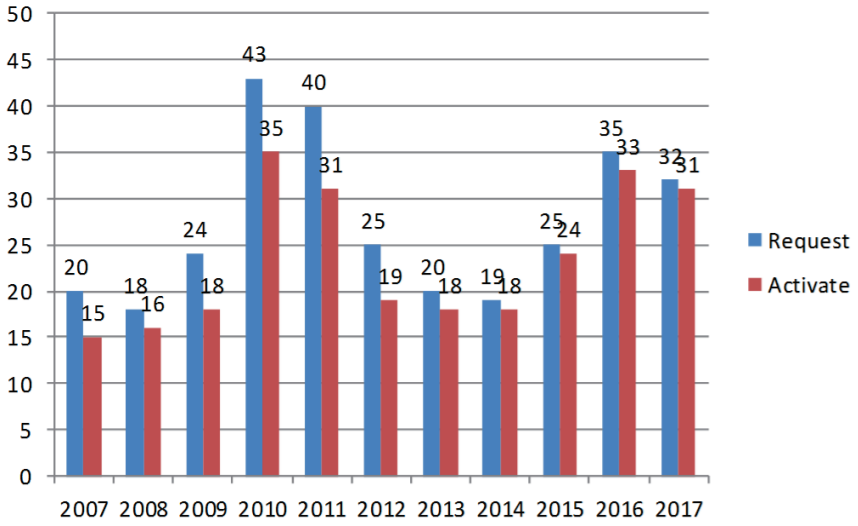


Fig.3-3-4. Changes in the number of emergency observation 2007-2017

Looking at the breakdown of type of disaster from 20107 to 2017, the ratio of flood occupies for more than one third of the total (Fig. 3-3-5).

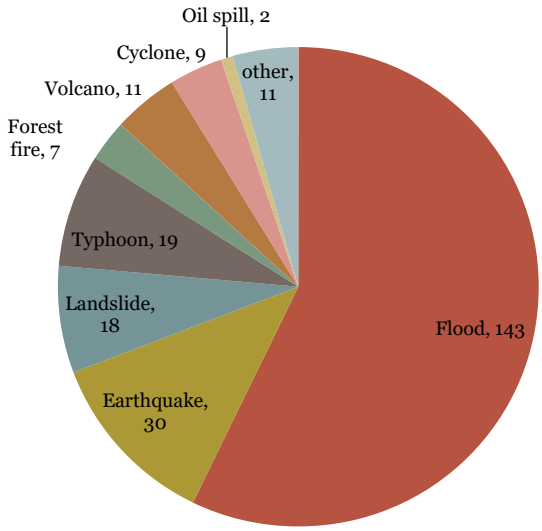


Fig.3-3-5. Breakdown by type of disaster (2007-2017)

Regarding the number of activation, many EORs were requested by Indonesia Philippine, Vietnam, Japan, Nepal, India, Pakistan, and so on. Many requests have been made by the countries where relatively both DRR organization and space agency are relatively large such as Indonesia with BNPB and LAPAN. ADRC received 12 request from Vietnam as the largest in 2017.

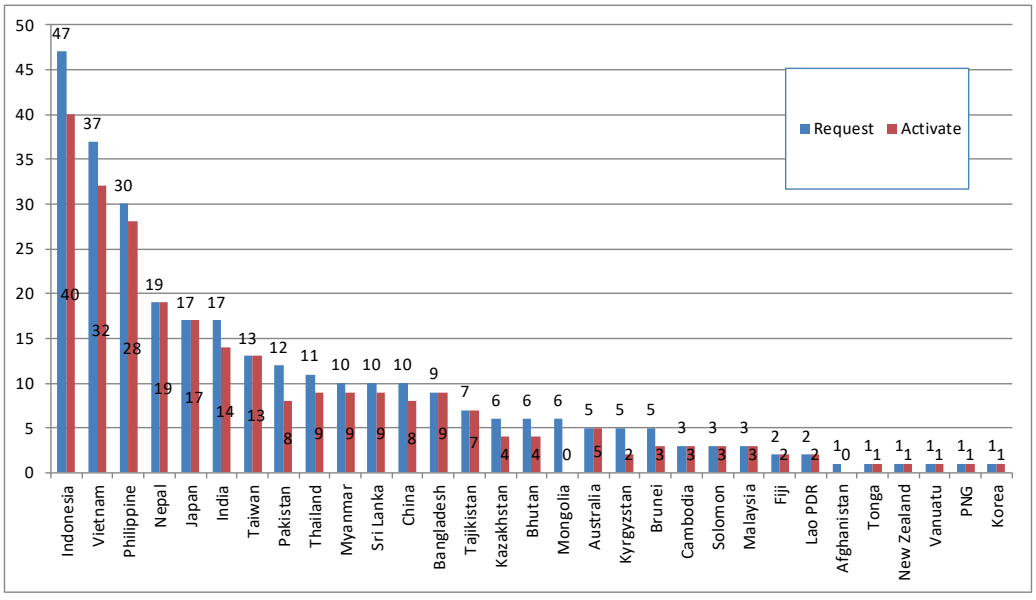


Fig.3-3-6. Breakdown by the country of the request and the activation of the Emergency observation (2007-2017)

3-3-2. Sentinel Asia STEP3 activities for DRR3-3-2. Utilization Promotion of Earth Observation Satellite for DRR

(1) Participation for International Conferences

① The 24th Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-24)

The 24th Session of the Asia-Pacific Regional Space Agency Forum (APRSAF) was held from 14 to 17 November in Bengaluru, India. It was co-organized by the Department of Space (DOS), Indian Space Research Organization (ISRO), Ministry of Education, Culture, Sports, Science and Technology (MEXT), and the Japan Aerospace Exploration Agency (JAXA).

APRSAF was established in 1993 to enhance space activities in the Asia-Pacific region. Attended by space agencies, governments, and international organizations such as the United Nations as well as companies, universities and research institutes, this forum is the largest space-related conference in the Asia-Pacific region. APRSAF has four Working Groups: the (1) Space Applications Working Group (SAWG), (2) Space Technology Working Group (STWG), (3) Space Environment Utilization Working Group (SEUWG), and (4) Space Education Working Group (SEWG). APRSAF participants share information about their activities and the future plans for their countries and regions in each working group. APRSAF also supports international projects designed to find solutions to common issues such as disaster management and environmental protection.

The Sentinel Asia initiative is one such activities, and involves the use of space-based information in the form of satellite images for disaster management in the Asia-Pacific region. ADRC has been tasked with the responsibility of receiving emergency observation requests from ADRC member countries and Joint Project Team (JPT) members. ADRC joined the Space Applications Working Group (SAWG) and reported on Trends in Emergency Observation Requests of Sentinel Asia.Sentinel Asia marked its 10th anniversary in 2016 and its continued development is expected in 2017 and beyond. ADRC is planning to strengthen its network with disaster management organizations and to develop standard operating procedures for Sentinel Asia.

② The 7th Annual UN-SPIDER Conference

The 7th Annual UN-SPIDER Conference, jointly organized by the United Nations Office for Outer Space Affairs (UNOOSA) and the Ministry of Civil Affairs of the People's Republic of China, was held in Beijing on 23-25 October 2017. The three-day program included site visits to various organizations by the approximately 100 participants, including representatives of Space Agencies and Disaster Management Organizations from 34 countries and eight regions. The ADRC representative joined the conference in the afternoon of 24 October due to flight and weather challenges.

The theme of session 3, which started in the afternoon of the second day, was "Technology integrated for disaster risk assessment and emergency response." Presenters included representatives from the Food and Agriculture Organization of the United Nations (FAO), Beijing Normal University, Continuum Planning and Development Trust, India (a non-profit organization), and the Ministry of Home Affairs of India. The FAO report in particular highlighted the indicators affecting food aid decision-making within seventy-two (72) hours after a disaster by focusing on the examples of Cyclone Pam (Vanuatu, 6 March 2015) and the Great Southern Asia Floods (Bangladesh, August-September / Sri-Lanka May / Nepal, August 2017).

An ADRC representative participated in the session on "Integrated emergency response tools/systems" held after the break. Reports were given by World Vision International, the Department of Civil Protection of Zimbabwe, and Indonesia's National Institute of Aeronautics and Space (Lembaga Penerbangan dan Antariksa Nasional - LAPAN). LAPAN reported on the landslides that occur every year in Banjarnegara, Central Java and expressed appreciation for the contributions of Sentinel Asia.

On the final day of the conference, sessions were held in the morning, followed by site visits in the afternoon. Session 4 focused on "Integrated applications of Earth observation, global navigation satellite system and telecommunication constellations for disaster risk reduction and climate change related extreme hazards" and presentations were given by Newcastle University (England), Beijing University (China), and Delta University (USA).

Newcastle University reported on landslide analysis using Interferometric SAR in Xinmo village, Mao County in the Ngawa Tibetan and Qiang Autonomous Prefecture, Sichuan Province, China. Beijing University's report focused on the analysis of the effects of the Kumamoto Earthquake using the Polarimetric SAR (ALOS PALSAR PolSAR, 21 April 2016). Both reports emphasized that Synthetic Aperture Radar (SAR) satellites are expected to become even easier to use in emergency response and situation assessments efforts.

Session 5 focused on the theme of "Networking and engagement with the UN-SPIDER network." At the end of the session, the ADRC representative reported that ADRC has been playing the role of a Regional Support Office (RSO) for UN-SPIDER through the Sentinel Asia initiative and its escalation to an international charter. ADRC noted that it would be continuing to promote further voluntary involvement in disaster risk reduction activities by highlighting, for example, the participation of Mohammed Bin Rashid Space Centre (MBRSC) in Sentinel Asia and the provision of images from the August Jiuzhaigou Earthquake by Sentinel Asia.

In the afternoon, participants were divided into two groups that visited either the National Disaster Reduction Center of China or the China Academy of Space Technology (CAST) Exhibition Center. The ADRC representative participated in the former.

Fig.3-3-7. Presentation on the Annual UN-SPIDER Conference

③ The 3rd Steering Committee Meeting of Sentinel Asia

The 3rd Steering Committee Meeting of Sentinel Asia was held on 13 and 14 December, 2017 in Bangkok, Thailand and ADRC attended the meeting on Day 1.

Following the five themes of the draft strategic plan of Sentinel Asia, participants reviewed the present status of the Strategic Plan and discussed how to promote it more effectively by item by item. ADRC made a presentation on the theme of "Communication, Collaboration and Cooperation" towards better bridging DRR organizations and space agencies and updated the plan to organize ACDR 2018, annual meeting of ADRC and JPTM by JAXA in this October in Awaji, Japan, as agreed last October at the ADRC steering committee meeting held in Azerbaijan.

This time, Mohammed Bin Rashid Space Centre (MBRSC), UAE, that has joined Sentinel Asia since last year, attended the SC meeting for the first time as a new SC member to represent Data Provider Nodes of Sentinel Asia, and reported about the organization and activities. UAE has promoted development of Mars by following a hundred-year plan, which is planned for the future generations.

④ Fifth Joint Project Team Meeting for Sentinel Asia STEP3 (JPTM2018) Held in Taiwan

Asian Disaster Reduction Center (ADRC) participated in the Fifth Joint Project Team Meeting for Sentinel Asia, which was organized by the Japan Aerospace Exploration Agency (JAXA) and the National Applied Research Laboratories (NARL) from 23 to 24 January 2018 in Taiwan. The meeting was attended by around 50 participants including representatives of satellite agencies, disaster management organizations, and academic institutions in Japan. The meeting primarily covered the following topics:

- ✓ Status Report
- ✓ Sentinel Asia Strategic Plan for the next 10 years
- ✓ Local Hosts' Special Session

- ✓ WG Activities & Member reports
- ✓ Sentinel Asia Step3 to Sendai Framework for DRR
- ✓ Project Management
- ✓ Mitigation and Preparation
- ✓ Emergency Response

ADRC gave presentations on the activation of emergency observations in 2017 and its role as host of the next JPTM.

Fig.3-3-8. Fifth Joint Project Team Meeting for Sentinel Asia STEP3

4. Human Resource Development

4-1. Human Resource Development and Information Networking on Visiting Researcher (VR)

4-1-1. Background

The ADRC started Visiting Researchers (VR) program in 1999. Since then, a total of 105 officials from 26 member countries have participated in the program.

In the program, VRs have opportunities to learn about knowledge, experience and expertise about disaster risk reduction from Japan and other member countries and strengthen their network among ADRC member countries and relevant organizations.

Also, VRs are expected to contribute to strengthening the capacity on disaster risk reduction back in their countries after the program and to further promote cooperation between ADRC and their countries.

4-1-2. Objectives

The objectives are as follows:

- To offer opportunities of capacity building of officers in charge of disaster risk management of ADRC member countries,
- To promote networking of ADRC member countries through VRs, and
- To promote information sharing about latest disaster management and situations of ADRC member countries.

4-1-3. Activities of Visiting Researchers in FY2017

In fiscal year 2017, a total of six researchers joined the program (three researchers each at the first and second terms). The first term started from August to November 2017 and the second from January to April 2018.

(1) Armenia

- ☐ Ms. Kirakosyan Hasmik
- ☐ Job title at the time of visit: Main Specialist of Department Seismic Disaster Risk Reduction, Survey for Seismic Protection Agency, Ministry of Emergency Situation
- ☐ She had the intention to research on the innovative methods and experience using for the development of population preparedness to seismic disasters. She gathered information and made analysis through lectures and visits to municipalities, schools and relevant organization to conduct comparative analysis between Armenia and Japan and made recommendation to Armenia

(2) Bhutan

- ☐ Mr. Wangchuk Tashi
- ☐ Job title at the time of visit: District Disaster Management Officer, District Administration, Samdrup Jongkhar, Bhutan
- ☐ He had the intention to study on mainstreaming of Disaster Risk Reduction into development plan, policy, program and project in Bhutan's Five Year Plan. Through the lectures and interviews with experts of the central and local governments, he studied the applicability of Japan's practice to Bhutan.

(3) Philippines

- ☐ Mr. Calang Marc Gil
- ☐ Job Title at the time of visit：Civil Defense Assistant, Office of Civil Defense Caraga Regional Office (OCD)
- ☐ He had the intention to research about disaster response and preparedness mechanisms of the Philippines and Japan. Through lectures and visits to various disaster response organizations, he gained understanding of Japan's system and conducted comparative analysis between the two counties and made recommendation to the Philippines for establishing appropriate disaster response mechanism.

(4) Pakistan

- ☐ Mr. Brohi Nasur Ullah
- ☐ Job Title at the time of visit: Assistant Director, National Disaster Management Authority (NDMA), Prime Minister's Office
- ☐ He had the intention to study about Community-Based Early Warning System (CBEWS) in Pakistan. Focusing on communities with little access to customary Early Warning System, he will study information dissemination methods and dissemination of disaster knowledge for awareness raising and early evacuation. He plans to visit Japan Meteorological Agency, local governments, education sectors to learn the situations of Japan's Early Warning System and disaster education of community and make recommendation to his country.

(5) Thailand

- ☐ Ms. Srikwan Puntatip
- ☐ Job Title at the time of visit: Plan and Policy Analyst, Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior
- ☐ She has the intention to conduct research about safety culture in Japan and to make comparative analysis between Thailand and Japan. She will visit communities, voluntary disaster management organizations and NPOs as well as take lectures from experts of disaster management organizations.

(6) Viet Nam

- ☐ Mr. Pham Thanh Hong
- ☐ Job Title at the time of visit: Scientific Research Specialist, Disaster Management Center (DMC) Water Resource Directorate
- ☐ He plans to conduct a comparative study on landslide disaster management. For this, he will take lectures at landslide-related organizations and research institutes, central and local governments and private companies to get wide range of information and knowledge on landslide monitoring and countermeasures.



Fig.4-1-1. Scenes from presentation and visits of VRs; country report presentation, visit to Sapporo City Fire Department, disaster education event, Wakayama prefecture landslide countermeasures (clockwise from left above)

4-2. Seminars and Training Course

4-2-1. JICA Knowledge Co-Creation Program: "Comprehensive Disaster Risk Reduction for Central Asia and Caucasus"

From 19 June to 29 July 2017, the Asian Disaster Reduction Center (ADRC) conducted a training course for disaster management officials from Central Asia and the Caucasus with cooperation from the Japan International Cooperation Agency (JICA) Kansai International Center. The course was conducted in Russian and attended by a total of eight central and local government officials representing four countries: Kazakhstan, Kyrgyzstan, and Tajikistan in Central Asia, and Armenia in the Caucasus.

The training was designed to convey basic knowledge and experiences related to natural disaster management, and to encourage the disaster management activities that have been conducted in these countries. Central Asia and the Caucasus frequently experience disasters such as floods, droughts, landslides, and earthquakes, some of which extend across several countries. Also, heavy snowfall in the winter can lead to flooding when mountain glaciers thaw in the warmer seasons. Thus, these regions have common concerns in terms of disaster risk management. During the training, participants were asked to identify a major problem in their own countries and to formulate an action plan for addressing it. They attended lectures and visited central and municipal government agencies, research institutes, a meteorological organization, a broadcasting company, a disaster management base, private companies, and an NPO to comprehensively enhance their understanding of Japan's disaster management system.

Participants were able to learn about disaster management and information sharing in heavy snowfall events at the Snow and Ice Research Center of the National Research Institute for Earth Science and Disaster Resilience (NIED), located in Yamagata Prefecture. Heavy snows are one of the biggest challenges for participants, and this was good opportunity to consider suitable disaster management approaches to be taken in each country. They also participated in "Town Watching and Community-based Hazard Mapping" activities, which provide a good model of community-based disaster risk management. In addition, participants visited a lot of disaster management agencies and organizations in Tokyo, Tsukuba, Niigata, and Hyogo Prefecture.

Fig.4-2-1. Lecture at the Snow and Ice Research Center

It is hoped that the participants will make good use of the knowledge, technologies, and methods they learned from this training course to implement various projects and help strengthen the disaster management systems in their home countries. This course also allowed participants to reinforce their relationships with one another, and is expected to strengthen disaster management information networks in the region. ADRC would like to express its sincerest gratitude to all the organizations that contributed to the success of this course.

4-2-2. JICA Knowledge Co-Creation Program: "Comprehensive Disaster Risk Management"

From 11 January to 23 February 2018, ADRC, in collaboration with JICA, conducted the JICA Comprehensive Disaster Risk Reduction (DRR) Course for 8 countries, namely Bhutan, Chile, Iraq, Kenya, Myanmar, Pakistan, Peru, and Viet Nam. The participants consist of national or local government officials in charge of DRR, and some are researchers. Those who have vary backgrounds and expertise took part in the 7-week training. This course aimed to contribute to formulation and further development of disaster management activities and plans in participating countries by enhancing their understanding of Japanese disaster management systems and countermeasures implemented by central/local government and multi-stakeholders.

The training provides a various content, for instance, the lecture series of Japanese disaster management policy, participation in activities implemented by communities or private sectors, and case studies of past disasters in Japan. Therefore, participants comprehensively understood DRR efforts all over this country. At the international level, it is important to focus on implementation of Sendai Framework for Disaster Risk Reduction, so that we included a lecture on gender and disaster management as well as a lecture on disaster risk education by NPO, since women and civil society should be taken into consideration as stakeholders for the implementation.

Furthermore, we conducted observatory tours to devastated area of the Great East Japan Earthquake in 2011, and to local municipalities in Kochi prefecture, which are working for countermeasure against Nankai Trough Earthquake in the future.

Fig.4-2-2. Participation of Community-based DRR drill

Participants were strongly impressed to DRR efforts in Japan and learnt through exchange their perspectives among the members from multiple countries. These implications were adapted into their action plan, and it is hoped that they will make good use of what they experienced during this course to develop and strengthen DRR capacity in their home countries.

4-2-3. JICA Knowledge Co-Creation Program: "Raising Awareness of Disaster Reduction"

Asian Disaster Reduction Center (ADRC) implemented the Knowledge Co-Creation Program training program in collaboration with Japan International Cooperation Agency (JICA) for persons in charge of (a) raising awareness of disaster risk reduction (DRR) or the dissemination of disaster knowledge for communities by the central/local government, (b) raising awareness of DRR in the ministry in charge of education or the board of education, or (c) public relations for the central/local government related to raising awareness of DRR. This program was conducted in English and the participants were 11 officers and experts selected from 11 countries: Afghanistan, Bahama, Bhutan, Chile, Egypt, Fiji, Myanmar, Niue, Sri Lanka, Tonga and Viet Nam.

The purpose of this program is to share the experience, knowledge, and skills accumulated in Japan related to the work conducted by communities, schools, and the mass media, and to share the ongoing challenges related to outreach measures and public relations facing each country. The program also creates a forum for discussing opinions and ways to improve implementation. The participating countries all experience disasters, such as earthquakes, tsunamis, storm surges, typhoons, droughts, floods, and landslides. The participants therefore went on site visits and heard lectures by experts from a variety of sectors, including government (national and local), research institutes, mass media, schools, non-profit organizations, international organizations, and others. They learned a great deal from these interactions.

Fig.4-2-3. two participants from Afghanistan and Egypt talk with elementary school students who participated in the "IZA! Great Wonderful Kaeru Caravan."

In the case of the reconstruction of an erosion control dam implemented by the Ministry of Land, Infrastructure and Transportation following the 2014 Hiroshima Landslide, they learned about the necessity of proceeding with effective structural measures while improving local residents' understanding of natural disasters, and the importance of raising DRR awareness. Furthermore, they also learned about the dissemination of DRR capabilities in communities and schools through proactive participation in the disaster reduction event entitled "IZA! Great Wonderful Kaeru Caravan." They visited several relevant organizations in Higashi-Matsushima, Minamisanriku, Tokyo, and Tsukuba where they were able to hear lectures on DRR.

It is hoped that the participants will make good use of the knowledge, technologies, and methods they learned from this training course to implement projects and better raise awareness of DRR in their home countries. It also is essential that they use the contacts made and networks developed during this program for future collaboration on DRR.

ADRC would like to express its sincerest gratitude to all the organizations that contributed to the success of this program.

4-2-4. Japan-Singapore Partnership Program for the 21st Century "Disaster Risk Reduction and Management"

ADRC conducted the Japan-Singapore Partnership Program for the 21st Century "Disaster Risk Reduction and Management" for disaster management officials in ASEAN countries from 4 to 15 December 2017. This event was conducted in cooperation with the JICA and the Ministry of Foreign Affairs of Singapore.

The Japan-Singapore Partnership Programme for the 21st Century (JSPP21) was established in May 1997 to signify a widening of the scope of technical cooperation between Singapore and Japan with the intention of enhancing ASEAN integration and sharing the two countries' experience in their areas of expertise. Priority is placed on training and capacity building for officials who are in charge of disaster management. The training course was the second time to be held in Japan. The course was conducted for 16 central and local government officials representing seven countries: Cambodia, Lao PDR, Myanmar, Palestinian Authority, Philippines, Timor-Leste, and Vietnam.

The contents of the training are as follows:

1. Structure of gradual lecture of the national / local government / community
   At first, Cabinet Office and FDMA made lectures on the overview of DRR measures in Japan, then efforts in local governments, CBDRM and disaster education. It brought easier to understand.
2. Lectures and Field visits
   In Tohoku, after receiving a lecture on the outline and correspondence of the Great East Japan Earthquake from Sendai City, next lectures and visits were leaded by the Tohoku University and the Minami Sanriku Tourism Association about the actual condition of the damage in various places of disaster and the progress of reconstruction. Deep understandings were obtained by linking the lecture and field visit.
3. Connecting the lecture with the country report presentation
   Sendai City participated not only in the lecture but also in the country report presentation, and was able to provide a forum for discussion between instructors and trainees who exceeded lecture questions. At the Exchange Session, participants were able to deepen the discussion on the differences in the institutions and efforts of each country by the lead of JICA expert.

4. Assigning of Note Taker and information sharing

   Assigned note taker made note at each discussion time, and all participants shared it. It strengthened thee awareness of trainees, and it helped to establish knowledge.

5. Workshop for making action plan

   The action plan should be included the content of the training course, considered appropriate scale that the trainee could handle the plan, etc. were introduced. Furthermore, time management for presentation and formed power-point-file were presented. As a result of this efforts, Most of action plans were better created with enough focuses and scale.

Fig.4-2-4. Field Visit to Tokura community center in Minami-sanriku

Fig.4-2-5. Experience on Disaster Education in SONA area

Fig.4-2-6. Community-Based Hazard Mapping

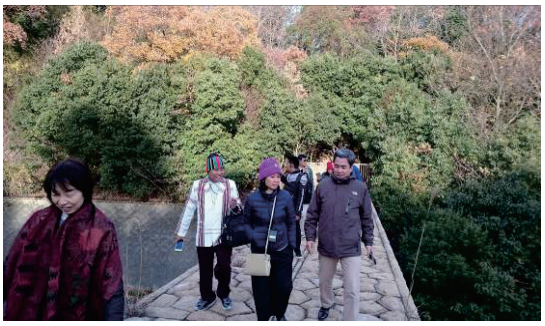


Fig.4-2-7. Field Visit to Rokko Sabo Dam

4-3. Promoting Cooperation with Affiliated Institutions and Implementation of Short-term Training

ADRC has been conducting a short-term training for the disaster risk reduction. Target people of the training are mainly government officials and students overseas. The contents of the training are focused on the current state of disaster in Asia, the activities of the Asian Disaster Reduction Center, and the disaster prevention measures in Japan, and so on. The training activity is a good opportunity to deepen their understanding of the efforts and awareness about the significance of disaster prevention activities, to improve the disaster prevention capability in Asian countries.

Visiting from Ministry of Civil Affairs from China are reported here. Asian Disaster Reduction Center hosted a study team led by Mr. GuZhaoxi, Vice Minister in China's Ministry of Civil Affairs and gave presentation on regional disaster reduction initiatives in Hyogo. We held a discussion meeting with the Tachibana Town Planning Council and the Kobe Central Fire station to highlight the disaster reduction welfare community concept in Kobe, one of the major community-based disaster reduction initiatives in Japan. We also arranged an opportunity for the team to visit the Disaster Reduction and Human Renovation Institution to learn about the region's experiences during the Great Hanshin-Awaji Earthquake.

That study team participated in the Global Platform for Disaster Risk Reduction 2017 held in Cancun, Mexico from 22-26 May. On the return trip home, they asked to stop in Japan to observe efforts in community-based disaster risk reduction. They were especially interested in having meetings with local stakeholders on the topic of disaster risk reduction by local residents and the assistance of local government, and we planned a series of study activities in response.

The group was led on a tour of the Disaster Reduction and Human Renovation institution by a Chinese speaking volunteer guide. ADRC will continue to share the experiences of reconstruction from the Great Hanshin-Awaji Earthquake and Kobe's efforts in community-based disaster reduction, and to share information with the Asian region and countries all over the world for the development of better disaster reduction initiatives for the next generation.

5. Promoting Cooperation with Member Countries, International Organizations and NGOs

5-1. Urban Search and Rescue Training in Singapore

Asia is the most disaster-prone region in the world. The natural disasters that have occurred here in recent years have been the most severe, prolonged and widespread ever experienced in the region. Moreover, the regional vulnerability tends to increase due to the rapid urbanization, the insufficient speed in building an infrastructure capable of coping with urbanization, the coupling of independent risk sources (interaction of natural hazards with chemical, technological, lifestyle, and social risks), and the insufficient management capacity.

The Singaporean government holds an annual training course for search and rescue officers, and over the past nine years, the course has included trainees from outside Singapore. Training is provided on the search-and-rescue expertise required in urban disaster situations. The training facility complex of the Civil Defense Academy (CDA) of the Singapore Civil Defence Force (SCDF) is one of the most advanced facilities in Asia. In an effort to utilize their expertise and facilities, ADRC has been inviting fire fighters and rescuers from member countries to participate in this training course since 2001. Following table is the list of participants in past. The number of participants has reached 55 in total.

Fig.5-1-1. Group Photo of Training in 2017

Table.5-1-1. List of Participants

Year	Countries of past participants	Number of participants
2001	Philippines, Myanmar, Korea	3
2002	Cambodia, Laos, Mongolia, Philippines, Vietnam	5
2003	Cambodia, Malaysia(2), Myanmar, Sri Lanka, Thailand(2), Philippines(2)	9
2004	Armenia, China, Nepal, Philippines	4
2005	Korea, Pakistan, Papua New Guinea, Russia	4
2006	Laos, Malaysia(2), Pakistan, Philippines(2), Papua New Guinea, Vietnam	8
2007	Bangladesh, Korea, Nepal, Philippines	4
2008	Bhutan, Thailand, Kazakhstan, Mongolia	4
2009	Armenia, Sri Lanka	2
2010	Bhutan, Mongolia, Maldives	3
2011	Bangladesh, Russia	2
2012	Thailand, Mongolia	2
2013 (2014)	Maldives, Bhutan	2
2015	Azerbaijan	1
2016	Mongolia	1
2017	Cambodia	1
Total		55

5-2. Capacity Building in Member Countries

5-2-1. Technical Cooperation Project in Nepal

(1) Background of the Project

Nepal is located in the area of collision between the Indian plate and the Eurasian plate, which has been hit by earthquakes frequently in the world. Kathmandu Valley, where the capital city of Nepal is located, has experienced several disastrous earthquakes, including the Bihar-Nepal earthquake of magnitude 8.4 which occurred in 1934, leading to collapse of approximately 20% of all buildings in Kathmandu Valley and 9,040 fatalities. Despite the high risk of a future earthquake in Kathmandu Valley, countermeasures such as retrofitting of buildings for seismic resistance, land use control and application of the National Building Code have not been sufficiently promoted so far. Further, due to the rapid increase of population of Kathmandu Valley, increasing number of population could face the risks caused by extensions work on existing buildings and non-engineered buildings that constructed without the participation of knowledgeable and skilled architects and engineers.

With this background, it has become an urgent need to update the risk assessment for the future development plans and raise policies concern on the disaster risk management. Under the request from the government of Nepal, JICA formulated the “Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley” and decided to start the project activities from the end of April 2015.

On April 25, 2015, just before the commencement of the project, the Gorkha earthquake of Mw7.8 (USGS) occurred at the boundary of the Indian Plate and the Eurasian Plate with its epicenter approximately 76 km west of Kathmandu. This earthquake brought heavy damages in a wide range of area; 8,790 people were killed and approximately 500,000 buildings were totally destroyed. Through a series of discussions with counterparts, the project component was partly modified in order to adapt to the changed post-earthquake situation and respond to the rehabilitation and recovery needs.

(2) Outline of the Project

The outline of the project is as shown in the below table.

【Project Period】	April 2015 – October 2016 (Term 1) October 2016 – April 2018 (Term 2) (Total 3 years)
【Project Goal】	To implement the earthquake risk assessment for future scenario earthquakes with considering the earthquake environment after the Gorkha Earthquake, and to develop the DM plan for concrete and effective promotion on disaster risk management for future earthquakes.
【Project Target Areas】	Kathmandu Valley (Targets for Pilot Activities: Budhanilkantha municipality, Bhaktapur municipality, and Lalitpur Metropolitan city)

【Expected Outputs】	[Output 1]: To conduct seismic hazard analysis based on scenario earthquakes utilizing the latest knowledge and create detailed ground model for Kathmandu Valley. [Output 2]: To conduct seismic risk assessment based on the results of seismic hazard analysis (Output1), and summarize as damage estimation by considering several occurrence scenes (time, date, season, etc.) [Output 3]: To enhance skills for updating risk assessment results in accordance with the social environment change in the future. [Output 4]: To formulate BBB recovery and reconstruction plan utilizing the results of hazard analysis, and disaster management plan based on the results of seismic risk assessment for the pilot municipalities.

The ADRC has dispatched the experts on "Standard Operation Procedure Planning" and "Community Based Disaster Risk Management/ Community and Social Analysis" to conduct some activities related to formulation of disaster management plan, a part of the above-mentioned expected output 4 of the Project and completed all the planned activities in March 2018.

Main objective of the "Standard Operation Procedure (SOP) Planning" activities was to formulate SOP manual indicated step by step procedures of emergency response for the target three municipalities based on lessons learned through the experiences of the Gorkha earthquake which hit in Nepal 2015. In the fiscal year 2017, the draft SOP manual developed in the fiscal year 2016 was reviewed and finalized by the comments and suggestions gained through several meetings with the counterparts of MoHA and some workshops in the pilot municipalities.

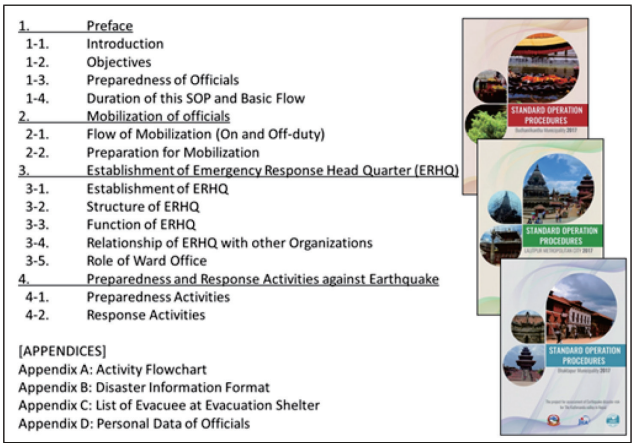


Fig.5-2-1. First Version of the SOP for Municipalities

(Source: JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley in Nepal)

Fig.5-2-2. Workshop for SOP Formulation

Figure 5-2-1 shows the table of contents of the finalized SOP manual. The manual attaches a) "Activity Flowchart" which shows specific activities to be followed in case of disaster, b) "Disaster Information Format" which standardized among three pilot municipalities, c) "List

of Evacuees at Evacuation Shelters" to facilitate easy management of the affected people, and d) "Personal Data of Officials" for contributing to prompt communication among municipality officials in case of a disaster.

As future endeavor, we expect local officials to: i) Update the SOP as per the latest government structure regularly, ii) Confirm the roles and responsibilities of each division/section for preparedness, and iii) Collect & share updated basic statistical information such as number of hospitals, students and teachers in each school, community disaster management system and structure, etc.

In the fiscal year 2017, the Community Based Disaster Risk Management (CBDRM) activities were conducted by the flow shown in the Fig. 5-2-3 targeting one selected ward in each pilot municipality with the view to enhancing capacities of the municipality officers. In the first workshop, the participants identified their disaster risks and current situation of their disaster management system through Hazard, Vulnerability and Capacity Assessment (HVCA) activities and interactive lectures and participatory discussion. In the second workshop, through field survey of their communities and DRR mapping activities, they discussed issues and challenges for DRR and DRM in their communities and developed draft ward-level DRM plans. In the third workshop, they finalized the ward-level DRM plans and "DRR Carte" which includes basic information for DRR and DRM in the communities. Also, they discussed priority activities in the DRM plans. As a final pilot activities, they prepared tools and equipment for emergency response as "Emergency Stockpiles," one of the designated priority activities.

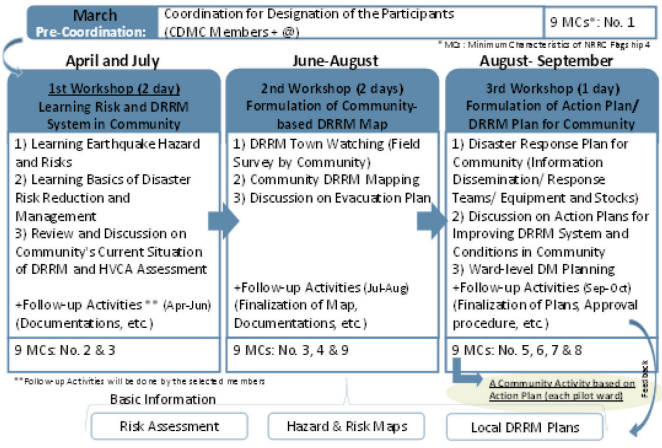


Fig.5-2-3. Flow of the CBDRRM Activities

Fig.5-2-4. CBDRRM Workshops

(Source: JICA Project for Assessment of Earthquake Disaster Risk for the Kathmandu Valley in Nepal)

For further promotion of the CBDRM activities, the following points should be pursued; to update and promote the guideline for the CBDRRM activities, to increase regular opportunities for the municipality officers to learn DRR and CBDRM, and to secure budget for the sustainable implementation of the CBDRM in the municipality.

5-2-2. Technical Cooperation Project in Mongolia

(1) Background of the Project

In 2013, the National Emergency Management Agency (NEMA) of the central government of Mongolia requested the Government of Japan to provide assistance for the technical cooperation project aiming to promote disaster management capacities related to earthquakes in Mongolia. JICA conducted the Data Collection Survey of Disaster Protection and Prevention in Mongolia from February 2016, and collected relevant information. Through the survey, JICA coordinated opinions with the Mongolian government and modified the contents of the request above to the ones focusing on strengthening the capacity of NEMA. Then, in May 2016, the modified request was finally adopted by the government of Japan. Subsequently, JICA dispatched the Detailed Planning Study Team, and according to the result of the study, JICA and NEMA agreed on the details of the Project named "The Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia", and started the project activities from November 2016.

(2) Outline of the Project

【Project Period】	November 2016 – April 2020 (Total 3.3 years)
【Project Goal】	The capacity of the National Emergency Management Agency will be enhanced through the activities for strengthening the countermeasures for seismic risk.
【Expected Outputs】	Output 1: Capacity for data collection on disaster risk reduction and coordination among related organizations will be enhanced. Output 2: Capacity of public administration officer related to the seismic assessment and seismic strengthening of buildings will be enhanced. Output 3: Implementing a plan on disaster risk reduction education and awareness raising activities will be developed and realized.

ADRC dispatched the expert for taking the leadership of the overall activities to achieve above mentioned "Output 3" in this project. Also, the following activities related to the School DRR are the main responsibilities of the ADRC;

- Development of Guideline for DRR Education in Pre-School, Elementary School, And Junior High School,
- Development of Educational Materials for DRR Education in Pre-School, Primary School, and Junior High School,
- Implementation of Training Program for Teacher Instructors, and
- Indirect Support for Implementation of Training Program for Teachers and School Staff Members

In the fiscal year 2017, through several workshops to introduce the practical examples of the School DRR education in Japan, the counterparts enhanced their understanding of the School DRR education. Further, through the second training program in Japan for the working-level counterparts, they learned the details of the current situation of the School DRR in Japan. Based on the information and knowledge gained in the above-mentioned opportunities, the counterparts have got on with the works to develop the School DRR guideline.

Fig.5-2-5. Trial Lesson of DRR Education in an Elementary School by the Japanese Expert

Fig.5-2-6. Observation of the Lesson of DRR Study in the Shichigo Elementary School (the Second Counterpart Training in Japan)

(Source: Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia)

5-3. Promoting Cooperation with Member Countries, International Organizations and NGOs

ADRC places high priority on the development of institutional and human networks to share disaster information in Asia. Developing networks between professionals and their counterparts in member countries, adviser countries, and observer organizations is vital to promoting cooperation on disaster reduction efforts in Asia. Therefore, ADRC invites high level and management level officials, including deputy directors, directors, and managers, to its annual ADRC International meeting to encourage interpersonal exchanges.

5-3-1. The 2017 Global Platform for Disaster Risk Reduction

The 2017 Global Platform for Disaster Risk Reduction was held in Cancun, Mexico, during 24th to 26th May 2017. The Global Platform, held bi-annually since 2007, was established as the main forum for those working for DRR from the national governments, the UN system, international organizations, regional organizations, academic institutes, civil society and the private sector to get together and to explore DRR challenges. The 5th meeting, co-hosted by the government of Mexico as well as UN-ISDR, took place outside Geneva for the first time. Diverse sessions were held throughout the three days. The 2017 GP was attended by largely 180 countries. From Japan, Mr. Habuka, Deputy Director General, Cabinet Office attended the meeting, and MOFA, Ministry of Land, Infrastructure, Transport and tourism, Japan Meteorological Agency sent delegates as well.

In the special session on Build Back Better on 24th May, chaired by Mr.Habuka, Deputy Director General, Cabinet office, focused on the status and challenges of the policy efforts towards BBB by learning from the lessons in the past, and discussed how to build DRR strategies at national and subnational levels. Mr.Habuka presented the government policies for DRR and increasing resilience by following the DRR plan in order to contribute to achieve the global targets.

On the Day2 afternoon, ADRC, as a regional international organization, made its official statement on the priority issues discussed so far with its member countries, based on the three major outcomes of the ACDR2016 in Phuket including policy measures to survive mega disasters, strengthening of DRR and DRM by capacity development, and science and technology supporting CBDRM. Key issues raised by member countries since the study visits to Kumamoto last year were also integrated in it including consideration in climate change adaptation. ADRC also informed about the ACDR2017 in Baku.

ADRC organized a breakfast meeting on 25th May to facilitate member countries' networking, which was attended by 18 participants from nine ADRC member countries, thanks particularly to the networks of former ADRC visiting researchers. In the meeting, Azerbaijan, hosting the upcoming ACDR 2017 in Baku, expressed their idea to invite the participants to the International Caspian Exercise 2017 for DRR, just before the opening of ACDR2017. The host country requested member countries to send high level delegates to the Conference considering the

increasing importance of DRR. ADRC invited member countries at the SC meeting held in Kumamoto, last December to share major DRR challenges and demands for regional collaboration in the future, in order to discuss ADRC future priorities. At the meeting in Cancun, the initial outcome provided by the six member countries, namely, Armenia, Bhutan, Cambodia, Indonesia, Philippines and Sri Lanka, were shared with by the participants. ADRC requested member countries to submit their idea and discuss DRR priorities in the future during GP meeting period and beyond. Participants then shared updates of recent DRR policies during the brief roundtable.

During GP period, ADRC attended various sessions and also discussed the ACDR2017 organization with Azerbaijan. GP gave us opportunities to exchange views individually with member counties as well on the future after the 20th anniversary, and to meet APEC economies on the opposite side of the Pacific.

GP in 2019 will take place in Geneva, according to the final announcement by UNISDR.

Fig.5-3-1. Group Photo

5-3-2. ISDR Asia Partnership (IAP) 2017 Ulaanbaatar

ISDR Asia Partnership (IAP) 2017 meeting was held in Ulaanbaatar, Mongolia, from 5th to 7th April 2017. This time, IAP meeting brought together participants from both DRR organizations and from statistical authorities. ED participated in it from ADRC.

The meeting was opened by welcome remarks by General Badral Tuvshin, Chief, National Emergency Management Agency, Government of Mongolia, followed by the opening remarks by Mr. Robert Glasser, Special Representative of Secretary-General for Disaster Risk Reduction, and the introduction of the agenda by Ms. Madhavi Ariyabandu, Officer-in-charge, UNISDR Regional Office for Asia Pacific. Session 1 chaired by Colonel Ganzorig Tsogtbaatar, Deputy Chief, NEMA, discussed the outcomes of AMCDRR 2016, followed by updates from the participating countries and international organizations.

Day 2 continued updates including that by ADRC regarding the four priorities of the Sendai

Framework including Kumamoto study visit, tsunami workshops, GLIDE, the 10 years' anniversary of Sentinel Asia. Ms.Saya, Director, Cabinet Office who arrived on Day 2 provided an informative report on recent policy progress regarding tsunami DRR, lessons learnt from the Kumamoto earthquakes, gender issues, and OEIWG.

Preparation for the AMCDRR 2018 was then discussed based on a report made by the host country. In addition to the organizational issues including the dates and venue, Mongolia provided its initial proposal of priority issues of "Urban disaster resilience" and "Investment in DRR", which participants discussed by splitting themselves into three groups

Day 3 first focused on the OEIWG and monitoring of Sendai Framework. ISDR briefed about the Sendai framework and monitoring system, on which countries reported by referring to the status including collaboration with statistical organization.

In many countries, information relevant to natural disasters is likely to belong to line ministries or regional entities, and statistical bureau in charge of SDGs action plan may face difficulties to work for DRR, although many of DRR organizations seem not yet to have established effective relationships with Statistical bureau.

Afternoon session of Day3 was first dedicated to the group exercise on the outcome of the OEIWG, which facilitated participants unfamiliar to the two years' discussion by OEIWG learning the outcome, although there seems to be significant gaps among participants in the understanding of the OEIWG outcome.

In the last session, participants shared the status of preparation and participation in GP to be held in Cancun in May with each other. The three days 'meeting was then closed by General Badral Tuvsin's remark.

5-3-3. ISDR Asia Partnership Forum

The ISDR ASIA PARTNERSHIP FORUM meeting was held on 14 and 15 December 2017 in Bangkok, Thailand attended by many DRR officials and practitioners. The participants were welcomed by Ms. Kirsi Madi, Director, UNISDR, followed by opening remarks and official opening by Ms Sayanaa Lkhagvasuren, Chief Adviser to Deputy Prime Minister and Head of DPM's Office, Government of Mongolia. After a roundtable introduction of the Participants, Ms. Loretta Hieber Girardet, new chief, UNISDR Regional Office for Asia Pacific presented the draft agenda.

On day 1, 16 countries including Japan made their brief progress reports on the implementation of the Sendai Framework and the Asia Regional Plan for Implementation of the Sendai Framework for Disaster Risk Reduction by following the three questions informed by UNISDR, (1. Major achievements made in year 2017, 2. Main challenges and 3. Ongoing or upcoming main programs/activities/events, followed by reports by international organizations and diverse stakeholders including ADRC in the afternoon.

ADRC first briefed about ACDR2017 held in Azerbaijan and the APEC workshop on rural infrastructure BBB, shared challenges ADRC member countries answered in the questionnaire

survey in Azerbaijan and the ACDR2018 in Awaji for the 20th anniversary as the key upcoming event.

Day 2 started with the report made by UNISDR on the outcome of the Technical workshop to launch the Sendai Framework Monitoring Process held Bonne workshop 6-8 December, and the key dates and milestones for 2018-2019. Participants then discussed priority issues of Sendai Framework by splitting themselves into groups. In the afternoon, Mongolia reported about the status of preparation for AMCDRR and the preparatory prices. In April, another ISP meeting will be held for the preparation for AMCDRR scheduled in July 2018.

Fig.5-3-2. Conference

5-3-4. the 12th Meeting of Typhoon Committee Working Group on Disaster Risk Reduction

ADRC participated in the 12th annual meeting of the Working Group on Disaster Risk Reduction on “Future Strategic Plan of WGDRR after Sendai Framework” was organized by UNESCAP/WMO Typhoon Committee and the National Disaster Management Research Institute (NDMI) in Ulsan, Republic Korea on 30 -31 May 2017.

The main objective of the meeting was to share the information of members' typhoon-related public education and training. Some 30 participants from member countries and relevant organizations, including ADRC reported on their recent public awareness and education activities as well as updates on WMO and NDMI's DRR information system tools.

After the meeting, Advisory Working Group meeting followed to discuss future strategy of Typhoon Committee operation on 1-2 June 2017.

Fig.5-3-3. Conference

5-3-5. ESCAP/WMO Typhoon Committee 12th Integrated Workshop

The ESCAP/WMO Typhoon Committee 12th Integrated Workshop “Tropical cyclone related forecast, warning and DRR in the era of big data and social media: challenges and opportunities” was held from 30 October to 3rd November, in Jeju, Republic of Korea. From Japan, JMA, MLIT, ICHARM and ADRC attended the meeting. The workshop was opened by Director General,Korea Meteorological Administration, Dr.CHO hyoseob, Han River Flood Control Office, Republic of Korea, Mr.Yu Jixin-Typhoon Committee Secretary,Typhoon Committee Secretariat, Mr.Taoyong Peng,Chief of TCP Programme, World Meteorological Organization and Representative of ESCAP. Dr. NAM Jaecheol, Administrator of Korea meteorological Administration made an opening address by video.

In the following plenary session, a series of keynote lectures were given on the main theme of “Tropical cyclone related forecast including one by Mr.Murai, JMA on “Tropical cyclone forecast improvements at JMA-challenges and opportunities with the Bog data”.

On day 2, three parallel sessions took place and participants attended individual working groups: JMA for working group for meteorology, MLIT for working group for hydrology and ADRC for working group for DRR.

The WGDRR Parallel Meeting started with attended by 20 participants from nine members including China, Hong Kong, China, Japan, Lao PDR, Philippines, Republic of Korea, Thailand, USA and Vietnam, and the representatives from TCS and WMO. First, participants presented their report on the activities on DRR in 2017 and typhoons.

ADRC first summarized four typhoons that landed Japan in 2017 by October including no.3, no.5, no.18 and no.21, and reported about recent use of GLIDE by stressing the effectiveness of GLIDE for sharing information on disasters affecting many countries beyond borders in particular those on typhoons. ADRC also informed about some cases of infrastructure BBB studied in the APEC project by highlighting the BBB cases in which relevant authorities in the affected region successfully overcame the effects of typhoon at the stage of infrastructure recovery works. Finally, ADRC shared its member countries’ DRR priorities of climate change

and climate induced disasters, and stressed the importance of learning the past experiences such as the great Hanshin flood in 1938.

5-3-6. APEC Workshop on Promoting Policies, Regulations and Flexibility to Improve Resilience of Supply Chains

Prior to the EPWG meeting, an APEC Workshop on Promoting Policies, Regulations and Flexibility to Improve Resilience of Supply Chains tool place on 17th and 18th August.

This project by US initiative from APEC working group discussing transport issues, TPTWG, has been undertaken since 2013 for an APEC action plan for five years. This year, the workshop focused on one of the seven themes, "4. Promote best practice policy, regulations, and flexibility to enable global supply chain resilience." ADRC made a report titled" Appropriate Policy Responses for Resilient Supply Chains: What Role Can Governments Play?". After reporting outline of ADRC activities, in particular, APEC projects ADRC has so far contributing to, ADRC discussed infrastructure investment as a role of government by referring to the APEC project of rural infrastructure BBB. ADRC stressed that resilient infrastructure investment by effective collaboration between DRR authorities and those of development is a key for DRR in addition to rules and regulations. The workshop was attened by wide range of participants from both ministries in charge of transport and from DRR. Mr.Ono, visiting researcher of ADRC made a presentation on the role of private sector.

Fig.5-3-4. Conference

5-3-7. The 12th APEC Emergency Preparedness Working Group meeting

The 12th APEC Emergency Preparedness Working Group Meeting was held on 21 and 22 August in Ho Chi Minh, Viet Nam. The second EPWG meeting in the year 2017 was attended by 11 economies, JICA, Asian Foundation and so on. The host economy gave the welcome remarks from Mr. Tran Quang Hoai, Director General, Directorate of Natural Disaster Prevention and Control and Mr. Lê Thanh Liêm, Vice-Chairman of Ho Chi Minh City People's Committee.

Mr.Hoai, reported that in Viet Nam,DRR department of MARD, Ministry of Agriculture and rural development has been upgraded as a new department/bureau called VNDIMA(Viet Nam Disaster Madamenet Authority) on 18th August. In the session, detailed organization of the new VNDMA were shared throught the meeting.Peru, the host for 2017, which could not attend the EPWG meeting in January due to the severe flood, reported this time the outcome of the Peru year

A series of presentation were then made by Viet Nam regarding the key themes for the 11th Senior Disaster Management Officials Forum (SDMOF 11), scheduled in September, Vinh City, Nghe An province. Mr. Tran Quang Hoai, Director General-Directorate of Natural Disaster Prevention and Control and Permanent member of Central Steering Committee for Natural Disaster Prevention and Control moderated the discussion. Presentations by Viet Nam included those on science and technology made by Vietnam Academy for Water Resources, Directorate of Natural Disaster Prevention and Control, and so on. Vietnam Academy of Science and Technology presented a research by using space technology for disaster prevention and control by referring also to Sentinel Asia. Other econoimes and non-APEC organizations then presented their inputs and shared their ideas and suggestions for organizing the SDMOF.

Japan rported about the APEC project of Enhancing Rural Disaster Resilience through Effective Infrastructure Investment a including the workshop scheduled in September, and invoted member economies' wide participation. Also, MLIT Japan briefed on CTI activities regarding" Workshop on Capacity Building for Quality Infrastructure Investment in Rapidly Urbanizing APEC Region" and discussed possibilities for cross for a collaboration regarding infrastructure issue.

Economies then shared recent experiences of natural disasters and policies including policy development from Australia and recent disasters from New Zealand, Peru. Philippines, Chinese Taipei, Viet Nam and China. Japan, after a brief report on the heavy rainfall that hit Kyhushu, reported about commemoration of 70th anniversary of the Kathleen in 1947 this year and the 80th anniversary of the Great Hanshin Awaji flood in 1937 in the following year, and stressed the importance of learning from the disasters in the past as well as in other economies so as to raise awareness of their individual colleagues including financial authorities by reminding them of possibilities of mega disasters. Co-chairs then proposed economies to discuss the draft outcome paragraphs from the group for the leaders' declaration for the year Viet Nam items, followed by discussion.

Papua New Guinea, the host economy for 2018, briefed about the draft schedule of 2018 and key policy concerns, and informed that APEC meetings in 2018 would be coordinated by Climate Change and Development Authority, CCDA, together with Natural Disaster Center, NDC.

At the end of Day2, Chinese Taipei proposed to discuss an idea of "Plant Back Better", or effective recovery and reconstruction by planning vegetables, and shared a good practice in Cambodia of successful income generation in the affected areas through PBB. During the discussion, ADRC suggested that PBB could be a recovery solution for diverse social contexts by referring to a case from Hyogo prefecture, which faces a completely different realty from that

of Cambodia, since the affected population is largely elderly and they thus planted trees instead of restarting agriculture.

5-3-8. APEC Workshop" Enhancing Rural Disaster Resilience through Effective Infrastructure Investment"

Prior to SDMOF, ADRC, together with MARD, Viet Nam, organized an APEC Workshop" Enhancing Rural Disaster Resilience through Effective Infrastructure Investment" -- Build Back Better of infrastructure supporting industries in region "on 19th September, in Vinh city.

This workshop, held for an APEC project was attended by approximately 40 participants from 11 APEC economies.

Mr. Nguyen Sy Hung, Deputy Director of Department of Agriculture and Rural Development, Nghe a province, Vietnam gave his welcome remarks, followed by an introductory presentation by ADRC on the concept of the project. Dr.Le Quang Tuan, EPWG co-chair, MARD,chaired the first session in the morning and experts reported good practices from the case economies including Chinese Taipei by Dr. Kuo Chun-Chih, Department of Civil Engineering, National Taiwan University, Indonesia by Dr. Khaerun Nisa ,Lecturer, Atma Jaya Yogyakarta University, Japan by Mr. Masami Suigur, Concultant, Asia Air Survey Co Ltd, Philippines by Dr. Emmanuel M Luna, Professor, College of Social Work and Community Development, University of the Philippines and Vietnam by Dr. Dang Thi Thanh Huyen, Consultant. Participants then discussed the issues raised by the experts, in particular, effective collaboration with the private sector.

Regarding the cases, Chinese Taipei, USA and Japan submitted good practices of immediate recovery facilitating recovery and reconstruction process, Philippines and Indonesia presented cases of transport infrastructure recovery and BBB for wider scope of areas greatly contributing to upgrading connectivity, while Viet Nam and Indonesia analyzed many cases of locally manageable community infrastructure by using environmentally friendly technologies, for example.

In the afternoon, ADRC chaired the second session, in which, Chile, Mexico, Peru and Indonesia added their experiences from the government point of views, and Dr. Nguyen Dang Giap, Director, Research Center for Natural Disaster Prevention and Mitigation, Vietnam Academy for Water Resource pointed out challenges from Academic point of views, followed by the private sector's view from Mr.Takufumi Ishikawa, Executive Member of JBP, Japan Bosai Platform. Throughout the discussion, effective collaboration with the private sector as well as close collaboration between development authorities and DRR authorities have been repeatedly raised as the two key elements. Based on the discussion in Vinh, the casebook will be completed.

5-3-9. The 11th APEC Senior Disaster Management Officials Forum (SDMOF)

The 11th APEC Senior Disaster Management Officials Forum (SDMOF) was held in Vinh City, northern Viet Nam on 21-22 September 2017 and Mr.Yoneda, Deputy Director General, Cabinet

Office and Mr. Moriwaki, deputy director attended the meeting. ED of ADRC attended in it as EPWG co-chair. The Forum was hosted by MARD, Viet Nam and officially opened by H.E. Hoang Van Thang, Vice Minister of Agriculture and Rural Development of Viet Nam, and H.E. Mr Dinh Viet Hong, Vice Chairman of the People's Committee of Nghe An Province. Approximately 160 participants from 16 economies participated in the meeting.

In the first plenary session on successful cases of applying advanced technologies and regional collaboration chaired by New Zealand, Mr.Yoneda, Deputy Director General, Cabinet Office, Japan made a presentation on use of ICT for DRR by highlighting J-ALERT, while Philippines, Chinese Taipei, and UNISDR Asia Pacific contributed to the Panel in addition to the host economy, Viet Nam. zIn the following three technical sessions, participants from member economies and research institutes, the private sector and international organizations provided their experiences on application of cutting edge technologies for DRR purposes.

Based on the two days' discussion, the final plenary session on Day2discussed draft Vinh joing declarations on science and technology for DRR--Enhancing science technology and cooperation to facilitate DRR decision support towards an effective policy making for upgrading DRR governance. The economies adopted the declaration at the end and the essence was integrated into the APEC 2017 Ministerial Meeting, Joint Ministerial Statement.

5-3-10. The 13th APEC Emergency Preparedness Working Group Meeting

Papua New Guinea, PNG has officially kicked off its APEC year 2018 and the First Senior Officials Meeting (SOM1) took place from 24th February to 9th March. At the beginning, the 13th Emergency Preparedness Working Group Meeting was held at Laguna Hotel, in Port Moresby.

Mr. Ruel Yamina, Managing Director Climate Change and Development Authority Papua New Guinea, officially opened the meeting, followed by the remarks by the new co-chair, Dr. Wei-Sen Li, Chinese Taipei. Japan as the former co-chair expressed its gratitude to the host ecoonmy and conglaturated Chinese Taipei on its appointment to EPWG co-chair.

At the first meeting of 2018, PNG as the host economy presented the themes and priorities for 2018, "Harnessing Inclusive Opportunities, Embracing the Digital Future". PNG then updated on preparation for the 12th Senior Disaster Management Officials Forum, SDMOF, scheduled on 25th and 26th September in Kokopo, East New Britain island, and proposed

"Advancing multi hazard early warning systems for emergency preparedness and DRM", as the main theme for SDMOF including effective data collection and analysis for warning, communication and delivery of warning message, and localization of warning, by learning from the major natural disasters that hit the economy including the Volcanic eruptions in Rabaul(1994), Aitape tsunami (1998), Cyclone Guba (2007) and El Nino droughts of 1997-1998 and 2015-2016, and the disaster experiences in other economies. As the outcome, PNG suggested to discuss policy statements and recommendations to ensure early warning systems facilitating monitoring of multiple hazards, and to share best practices on the use of digital technology to collect, store,

and analyze monitoring and warning data, and so on.

Co-chair then presented the EPWG 2018 Work plan, followed by updates and reports on the progress of EPWG projects. Chile first reported about the workshop on Tsunami Threat Assessment for Tsunami Warning Centers of APEC Economies held last December. ADRC reported on the APEC project "Enhancing Rural Disaster Resilience through Effective Infrastructure Investment "co-sponsored by Viet Nam, Japan and other economies, and the workshop held in Vinh city, last September. The essence of the draft casebook was shared with and member economies for discussion. ADRC also informed member economies about the 2017 project "Identifying Economic Impacts by Mega Disasters Affecting Asia Pacific Economies "and announced that the workshop is scheduled in autumn in Awaji, Japan, back to back ACDR2018.

In the afternoon of Day1, participants shared recent experiences of natural disasters including the cyclones and heatwaves by Australia, Hurricane Harvey, Hurricane Irma, and Hurricane Maria by USA, Pohan Earthquake in November 2017 by Korea, El Nino and Mount Kadovar eruption by PNG, and the Hualien in February by Chinese Taipei. ADRC briefed about the heavy rainfall in Kyushu last summer, and also recent eruption of mount Kusatsu-Shirane and heavy snowfalls this winter in Japan.

Day 2 morning session started with the report by China on the preparation of the 10th anniversary of Sichuan earthquake, followed by a video message on recent inundation by, INDECI, Peru. In the discussion on DRR policy priorities and APEC DRR Framework implementation, ADRC informed about GLIDE as a basic tool for DRR information sharing that will facilitate implementation of APEC DRR framework and encouraged member economies to use GLIDE. As an outreaching collaboration, ADRC also reported about its activities and the discussion with its members on the future DRR priorities after its 20th anniversary.

PNG, despite the recent floods and the volcano eruption, successfully organized the first meeting of EPWG, thanks to collaboration and preparation made by CCDA and NDC.

The second EPWG meeting is scheduled in August in Port Moresby.

Fig.5-3-5. Conference

5-3-11. Participation in the meeting entitled "Constructing A Community of Shared Future in East Asia: China, Japan and South Korean Search for Social Reconciliation and Cooperation"

This meeting hosted by the Department of Faculty of Social Science and School of Public Administration, Zhejiang University, was held as the track 2 meeting of interdisciplinary studies on promotion of trilateral collaboration. University faculty members and public organization researchers who specialized political science, sociology, economics, anthropology, environmental science and others in China, South Korea and Japan reported their studies, activities, efforts and experiences in their individual fields.

ADRC representative reported the present status and challenges of international cooperation in disaster reduction, by highlighting the backgrounds Asian Disaster Reduction Center and activities so far, under the title of "Can Disaster Reduction Cooperation could leverage social reconciliation among China, Japan and South Korea?", and referred to the possibilities that the collaboration for "Disaster Risk Reduction" could facilitate trilateral social reconciliation among China, Japan and South Korea.

Participation in this meeting reminded me that "BOSAI (Disaster Risk Reduction)" doesn't only mean dealing with disaster including natural hazards but also relates to socio-cultural implications.

In this context, ADRC could contribute further to the trilateral relationships, if it will have opportunities of exchanges in the future.

Fig.5-3-6. Group Photo

5-3-12. Global Forum on Science and Technology for Disaster Resilience 2017

From 23rd to 25th November, the Global Forum on Science and Technology for Disaster Resilience 2017 was held at Science Council of Japan and National Art Center, Tokyo, JAPAN co-organized by Science Council of Japan (SCJ), United Nations International Strategy for Disaster Reduction (UNISDR), Integrated Research on Disaster Risk (IRDR), Public Works Research Institute (IRDR) and National Research Institute for Earth Science and Disaster Resilience (NIED)

The conference was opened by the opening remarks by Dr. Robert Glasser, the Special Representative of the UN Secretary-General for Disaster Risk Reduction, followed by Prof. Shuaib Lwasa, Chair, Science Committee, Integrated Research on Disaster Risk (IRDR), and Prof. Toshio Koike, Director, International Centre for Water Hazard and Risk Management (ICHARM) Public Works Research. Prof. Gordon McBean, President, International Council for Science ICSU, then delivered a keynote speech

During the three days, eight plenary panel discussions including four for each priority action of the Sendai Framework were held, while three working sessions and poster presentations were organized as well. In the prenary panel 2 on the priority 2, Ms. Setsuko Saya, Director of International Cooperation Division, Disaster Management Bureau, Cabinet Office made an intervention. ADRC made a brief presentation in the plenary panel 1 on GLIDE and made comments in a poster session on the use of satellite imagery with JAXA. The draft of “Tokyo Statement 2017--Science and technology action for a disaster-resilient world was discussed. At the end of the three days, a high level session took place in the presence of His Imperial Highness the Crown Prince.

Fig.5-3-7. Conference

5-3-13. The World Bosai Forum / International Disaster and Risk Conference

(1)The World Bosai Forum / International Disaster and Risk Conference 2017, Sendai

The Sendai Framework for Disaster Risk Reduction, a global framework for disaster risk reduction, was adopted as the outcome document of the Third United Nations World Conference on Disaster Risk Reduction, 2015. As one of the promotion, the “World Bosai Forum/ International Disaster Risk Conference” in Sendai is scheduled to have in every two years. The first World Bosai Forum had more than 900 participants from over 40 countries/r regions. There were 50 DRR specialized sessions, pre-forum festival, 12 technical exhibitions, 93 poster presentations, 26 mini presentations, and study tours/excursions to tsunami-affected areas.

ADRC participated in one of the DRR specialized sessions, the "Transdisciplinary Approach (TDA) for Building Societal Resilience to Disasters – Eff orts towards Achieving the Goals of Sendai Framework–" organized by Japan Society of Civil Engineers (JSCE), and presented activities and future plan of TC21 committee and TDA.

(2)Bosai Kokutai 2017

"Bosai Kokutai 2017: The National Conference on Promoting Risk Reduction" hosted by the National Council for Promotion of Disaster Risk Reduction has been held since 2016. Bosai Kokutai 2017 was held in Sendai at same time as " World Bosai Forum/ International Disaster Risk Conference” and the Industry Exhibition for DRR.

ADRC has cooperated since the first Bosai Kokutai, and participated the poster exhibition in order to promote ADRC activities in collaboration with many related organizations for the capacity development in ADRC member countries.

6. International Recovery Platform (IRP): History and Current Activities

6-1. The Establishment of IRP

While the capacity of the UN system for disaster response and humanitarian assistance are widely recognized, there is currently a vacuum in terms of the UN's capacity and system-wide mechanisms for post-disaster recovery efforts, particularly those with a risk reduction focus.

Experience increasingly affirms that the post-disaster recovery phase provides a critical opportunity to shift the focus from saving lives to restoring livelihoods, and is an important time for introducing measures to reduce future disaster risk. Effective recovery can help close the gap between relief and development, and can transform disasters into opportunities for sustainable development. This occurs when efforts are made to support local and national recovery processes at an early stage, when risk reduction considerations are factored into all recovery activities, and when the synergies between development, humanitarian, and other actors involved in the response phases are properly channeled. A successful recovery effort, then, is predicated on having advance agreements and mechanisms in place so that the recovery process is effectively conceived and managed, and is initiated in a timely manner. This includes such measures as appropriate assessment methodologies, pre-established resource mobilization mechanisms, surge capacity to support UN Country Teams, and standing coordination mechanisms.

Shared concerns related to the UN approach and processes for post-disaster recovery have resulted in the formulation of a joint initiative, the International Recovery Platform (IRP), by the UN system, ADRC, and other partners, with the encouragement and support of Japan as well as other donors and key program countries. This initiative was discussed at the 2005 UN World Conference on Disaster Reduction (WCDR) during session 4.9 on Post Disaster Recovery. Representatives from the ADRC, UNDP, UN-HABITAT, ILO, and other concerned UN agencies expressed their respective agency commitments and support for the proposed international platform for recovery. The meeting resulted in a recommendation for the establishment of the International Recovery Platform (IRP).

In four months after the WCDR, the International Seminar on Post Disaster Recovery, in support of IRP, was held at Hyogo House on 11-13 May 2005. IRP was officially established in Kobe.

6-2. The Governance Structure of IRP

IRP consists of 17 governments, UN agencies, and international organizations including ADRC (as of March 31 2018).* IRP focuses on the following three priority activities for recovery: (a) Knowledge Management and Advocacy, (b) Training and Capacity Building and (c) Enhancing Recovery Operations.

As described in IRP Strategic Framework 2015-2020, IRP Secretariat is located in Kobe and responsible for convening IRP Steering Committee meetings and disseminating information on

IRP activities and knowledge products.

* IRP members: Asian Development Bank (ADB), Asian Disaster Reduction Center (ADRC), Cabinet Office of Japan, Centro de Coordinación para la Prevención de los Desastres Naturales en América Central (CEPREDENAC), Hyogo Prefectural Government, International Labour Organization (ILO), Ministry of Foreign Affairs of Italy, Swiss Agency for Development and Coordination (SDC), the World Bank, United Nations Centre for Regional Development (UNCRD), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Educational, Scientific and Cultural Organization (UNESCO) ,United Nations Human Settlements Programme (UN-HABITAT), United Nations International Strategy for Disaster Reduction (UNISDR), United Nations Office for Project Services (UNOPS), World Health Organization (WHO).

6-3. IRP Activities in FY 2017

6-3-1. International Recovery Forum 2018

Introduction

The discussions at the Forum revolved around "Build Back Better for Urban Resilience", wherein experts, scientists, practitioners, and public and private officials served as resource persons. The outcomes highlighted a forward-looking perspective of "Build Back Better in Recovery" that encourages cities to directly address the challenges they are facing today, as these greatly contribute to vulnerability that will make future recovery efforts difficult. It also pointed that the "people's process" approach in disaster recovery (which has been tested in many communities worldwide) may take time during the planning phase, but it can offer speedy implementation of activities when properly applied. However, it should not end there. Resilience implies consistent action – always looking forward and not back – to prepare towards the future: to *build forward better*.

The Forum was opened by **Mr. Stefan Kohler**, UNOPS Country Manager for Bangladesh and Chair of IRP Steering Committee, and followed respectively by the welcome remarks from **Mr. Mamoru Maekawa**, Vice-Minister for Policy Coordination of Cabinet Office Government of Japan, and **Mr. Kazuo Kanazawa**, Vice Governor of Hyogo Prefecture, on behalf of **Governor Toshizo Ido**. All the remarks highlighted the important role of IRP in coordinating and sharing knowledge on *build back better*, including the lessons from the Great East Japan Earthquake of 2011 and the Great Hanshin-Awaji Earthquake of 1995.

Fig.6-3-1. International Recovery Forum 2018

Themes and Format of the Forum

The format of the Forum was designed to address the following themes:

1. How does "Build Back Better" contribute to urban resilience?
2. What does it mean by "Build Back Better" for urban resilience?
3. Innovative approaches by learning from past experience and initiatives, and how to measure success of "Build Back Better" in cities?

The first theme was addressed through a **keynote speech** delivered by **Professor Takashi Onishi**, President of Toyohashi University of Technology (TUT) and Emeritus Professor of University of Tokyo. Based on detailed investigation of the recovery efforts from the Great East Japan Earthquake, Prof. Onishi emphasized that *build back better contributes to urban resilience* through context-specific measures that ensure greater safety of communities than before the disaster. His speech emphasized five messages on how to *build back better for resilience*: (i) restore damaged communities so as not to be affected by similar disasters, (ii) restore the lives of disaster victims to realize their hopes as much as possible, (iii) restore industries and social activities in the affected communities so as to avoid the influence of the disaster to the rest of the world, (iv) restore in sustainable way and avoid haste, and (v) restore responsibly through a well-considered implementation strategy.

The second theme was addressed through a **panel discussion** moderated by **Mr. Stefan Kohler**. The panelists, comprising **Ms. Setsuko Saya** of the Cabinet Office, Government of Japan and Co-chair of the IRP Steering Committee; **Mr. Raj Kumar Srivastava**, Deputy Chief of Mission Embassy of India in Japan, on behalf of National Disaster Management Authority; **Mr. Hans Guttman**, Executive Director of Asia Disaster Preparedness Center; **Mr. Josef Leitmann**, Lead DRM Specialist at GFDRR/World Bank; and **Mr. Atsushi Koresawa**, Director of UN-Habitat Regional Office for Asia and the Pacific, shared their views concerning the following:

- How *build back better for urban resilience* is understood in their respective institutions
- How *build back better* is integrated in their respective programs, initiatives, or activities
- How *build back better activities* are being implemented

The discussions were anchored on the consultative version of the Sendai Framework's implementation guide by UNISDR: "Words into Action: Build Back Better in Recovery, Rehabilitation and Reconstruction."The key messages from the discussions were integrated into the twelve key issues listed in this report.

Finally, the third theme was again addressed through a **panel discussion** moderated by **Mr. Nigel Fisher**, former United Nations Assistant Secretary-General. The panelists, including **Mr. Chiri Babu Maharjan**, Mayor of Lalitpur City, Nepal; **Mr. Huang Sanping**, Vice Mayor of Tangshan Municipality, China; **Mr. Noboru Shimizu**, Manager Planning Crisis Management Office of Kobe City, Japan; and **Mr. Shahbaz Khan**, Director of Jakarta Office and Country Representative of UNESCO in Indonesia, shared their views regarding the following topics:

- What innovative approaches on *build back better* are being introduced based on the lessons from past experiences

- How do these innovative approaches contribute to achieving long-term urban resilience
- How is success of *build back better* measured in cities

The sharing of experiences offered clear examples of what specific recovery approaches can help cities develop their resilience, including the strengthening of capacity to absorb the impact of hazards, protect and preserve human life, and mitigate future damage of public and private assets all while continuing to provide the essential infrastructure and services in the aftermath of a disaster. The specific lessons from these experiences were integrated in the twelve key issues listed below.

12 Key Issues

Issue 1: **"Build Back Better" Implementation Framework**

The basis of the discussions was the consultative version of the Sendai Framework implementation guide: "Words into Action on Build Back Better in Rehabilitation, and Reconstruction*"* that outlined four major tasks, namely: Task 1 Develop a National Recovery Framework; Task 2 Enable Pre-Disaster Recovery Planning; Task 3 Formalize Systems for Assessment; and Task 4 Strengthen Policies on Build Back Better. One of the issues about the guide is how to define and measure "better".

Issue 2: **Execution of "Build Back Better" Tasks**

It is one thing to define the four tasks, and it is another thing to determine how these are executed. The latter is a crucial factor in assessing how *Build Back Better* for urban resilience actually performs in reality. Good governance is essential for resilience, as it facilitates good planning, transparency, and clarity of responsibility and accountability.

Issue 3: **Context-Specificity**

While it was acknowledged that National Recovery Frameworks and Recovery Plans are essential, to be effective, these must be broken down into local context and location-specific development approaches – recognizing the unique features and characteristics of different locations, their specific vulnerabilities, and risk factors. It was an affirmation that one size does not fit all.

Issue 4: **Speed of Recovery**

Speed of recovery was constantly mentioned in the discussions, and that to ensure speed, the following were deemed as absolutely necessary:

- establishing good coordination (e.g. setting up a command center or disaster management headquarters within hours)
- starting recovery planning immediately, while still in the emergency response/rescue phase
- starting to implement the recovery plan as quickly as possible following the disaster
- building temporary housing quickly, and restoring lifeline infrastructures
- mobilizing the citizens and uniformed services to protect heritage sites and prevent thefts

Issue 5: **Comprehensiveness**

Build Back Better must be comprehensive, ensuring unified planning and response. It was pointed in the discussions that *Build Back Better* ensures integration of 'disaster risk reduction measures into the restoration of physical infrastructure and societal systems and into the revitalization of livelihoods, economies and the environment'. Additionally, it was emphasized that building resilience demands consideration of 'the urban system as a whole'. Hence, *Build Back Better* is anticipatory of future risks, and accordingly, adopts mitigation measures in systems, policies, and investment as shown in the case of Kobe City and Tangshan City.

Issue 6: **Consultation and Inclusion**

Consultative planning, as pointed out in the discussions, is often overlooked in many recovery processes. The speakers at the Forum affirmed that it is essential to put affected people at the center of recovery efforts. Many options were presented, including: (i) the "People's Process" approach to recovery as presented by UN-Habitat, emphasized the importance of community mobilization, planning, contracting, implementation and monitoring, which has been proven to be fast, cost-effective, transparent, empowering, and unifying; (ii) the BOKOMI Volunteer Disaster Response Groups of Kobe City engages citizens in restoration plans and projects as well as promoting mutual assistance and disaster drills; and (iii) pre-disaster preparedness planning, in response and recovery, as referenced in Lalitpur, strived for the inclusion of women, people with disabilities, and the elderly population.

Issue 7: **Recovery as Healing**

Recognizing that there are some long-term traumatic effects of a major disaster, it was pointed that recovery provides the opportunity for healing through psychosocial support. Restoring religious, cultural, and social life as well as economic life can help heal the urban fabric impacted by disaster. When *Build Back Better* focuses on living heritage, community, and social protection, it enables people to put their mental and physical lives back together, which is an important part of trauma recovery. Trauma may not be visible, but that does not mean that it does not exist.

Issue 8: **Assessment**

These questions prevailed: How to measure *Build Back Better*? How to measure success of *Build Back Better*? What is 'better'? While many examples of measurement, assessment, evaluation were shared, what was really emphasized is to give special attention to reducing vulnerability in risk-prone areas of formal and informal settlements including slums, and to reduce the vulnerability of the poorest and most vulnerable citizens. One of the suggested indicators of the success of *Build Back Better*: real improvements in the situation of the bottom 10% of the urban population in terms of their housing and access to social services, social protection, and employment. If the situation of the people at the bottom of the ladder is improving, it indicates that the situation of others who are better off in urban communities is improving too.

Issue 9: **Financing**

How to pay for it all – the preparedness planning, the mitigation efforts, the recovery and

reconstruction efforts? Can poor populations afford to build back better, not worse? The costs of recovery are increasing, and it was pointed that community engagement in recovery process is cost-effective. Recovery financing remains a key issue for local governments, especially in terms of disaster risk financing, insurance, and reinsurance. Moreover, there is a question regarding how cities and municipalities can improve their financial performance and credit worthiness to fund climate-smart infrastructure.

Issue 10: **Networking and Learning**

The presentations at the Forum reinforced the importance of knowledge exchange. Several examples of international knowledge networking, of online platforms of professionals, and of networks of affected people were reported. Many participants at the Forum called for more networking and knowledge exchange in area of disaster recovery – a manifestation that an event like the International Recovery Forum is a necessity for networking and mutual learning: global knowledge for local action. The Forum stressed the importance of documentation, of recording and making available for posterity what was done to prepare for and recover from disasters.

Issue 11: **Science and Technology**

Recovery strategies should also be based on scientific analysis. As part of Build Back Better efforts, a number of examples of the application of new technologies were presented:

- using new information technology to reach schools and young people, such as creating mobile applications for data collection (Tohoku Region, Japan)
- deploying vibration isolation technology in schools, hospitals, and kindergartens (Tangshan City, China)
- combining respect for the integrity of traditional heritage construction and new seismic strengthening technologies (Lalitpur, Nepal)
- fostering innovative industries in post-disaster recovery, such as the Kobe Biomedical Innovation Cluster (Kobe, Japan)

These examples show that technological evolution is accelerating in every field, and there is a need to be kept abreast of this rapid evolution in order to take advantage of it in recovery efforts.

Issue 12: **Future-Oriented**

Can vulnerabilities created by human actions (e.g., uncontrolled urban in-migration, unplanned urban growth, industrialization and development within high-risk zones, and environmental degradation) be undone? In order to move forward, the discussions noted that much of the land projected to become urban in the next few decades has yet to be developed, so there is still time to plan well and not continue the mistakes of the past. In view of this, investment decisions taken now will have huge implications for development trajectories in the future, and will prove critical in preventing cities from being locked into unsustainable development pathways, or being exposed to increasingly intense and frequent urban shocks and stresses.

Closing

At the closing, **Ms. Setsuko Saya** thanked 119 participants for their active participation and support to the Forum. Ms. Saya stated that the diversity of individuals attending the Forum reflects the essence of IRP as the "network of people". She further encouraged all participants to remain active in the discussions concerning build back better and resilience not only in the events organized by IRP but also in all other relevant platforms, online discussions, and conferences.

The Forum ended with a note that perhaps, "Build Back Better" will be succeeded by "Build Forward Better".

6-3-2. IRP/ADRC Engagement at the 2017 Global Platform for Disaster Risk Reduction

The International Recovery Platform (IRP)/ADRC had actively engaged in the fifth session of the Global Platform with the overarching theme "From Commitment to Action", by: (i) putting up a booth at the Market Place, (ii) delivering a talk at the Ignite stage; and (iii) organizing a side event in line with Priority Four of Sendai Framework. The IRP events were aimed at advocating for:

- Closer cooperation with development partners, regional intergovernmental organizations, regional organizations, and regional platforms for disaster risk reduction by promoting effective build back better outcomes
- Wider dissemination and information sharing of knowledge and experiences on build back better in recovery, rehabilitation, and reconstruction

These IRP events provide inputs to the discussions and outcomes of the GP2017, in particular advancing discussions for Priority Four of Sendai Framework.

IRP Booth at the Market Place

The booth featured knowledge products (e.g. guidance notes and tools) on build back better and resilient recovery. The materials were drawn from IRP members and partners. At the end of the global, the following were achieved:

- Distributed over 400 CDs containing case studies, tools, and guidance on build back better
- Handed out over 500 printed brochures on IRP and recovery (e.g. IRP and members' brochures, guidance notes, and reports)
- Showed promotional video on Build Back Better as well as related videos from members
- Displayed banners bearing key messages on IRP works on build back better

IRP Ignite Stage Presentation

At the Ignite Stage, the value addition of IRP Guidance Notes on Recovery was demonstrated by presenting the case of Japan, and why it can build back better. Based on analysis of the case studies on recovery from Japan, the following insights were drawn. Firstly, Japan demonstrates

"readiness to recover". This can be observed in the number of existing pre-disaster recovery plans and pre-agreements prior to disaster such as the one prepared by the Tokyo Metropolitan Government in preparation for the Nankai Trough earthquake. Secondly, Japan deliberately adjust mistakes and ensures improvements in policy, infrastructure, and societal systems during recovery phase. This is clearly evident when Government of Japan updates the building codes and relevant legislations following a disaster through the history. Finally, Japan persistently promotes a "culture of resilience" by integrating readiness for recovery in people's lifestyle. This is promoted through massive information dissemination, awareness-raising, and regular drills.

IRP Side Event

The IRP Side Event was jointly organized with Japan International Cooperation Agency (JICA). Vice Mayor of Sendai City opened the event by sharing recovery experiences of Sendai City. In this session, innovative programs on build back better – as presented by the speakers from JICA, India, and Guatemala – commonly highlighted "good governance of recovery process" as one of key factors for successful implementation. To achieve this, the following actions were specified.

Fig.6-3-2. Side Event

First, it is important to promote local ownership of the recovery process. The findings based on JICA's comparative study of Hurricane Mitch, Indian Ocean Tsunami, and Typhoon Haiyan revealed that local ownership of recovery process is fundamental to achieving build back better. Ownership of the process promotes a more decisive and accountable decisions. It implies learning from past experiences to effectively achieve the recovery vision. It was argued that the stronger the local ownership, the lesser the role of international actors. However, it was noted that local ownership does not necessarily mean denying external support and assistance. **Second, it is necessary to ensure responsibility with authority**. The experiences of India pointed that responsibility with authority includes strong institutional system that effectively handles political dynamics and continuity of efforts. It includes ability to delegate roles such making use of experts, consulting with stakeholders, community engagement, timely decision-making, effective coordination, and application of lessons from previous experiences. **Finally, it is useful to adopt a National Disaster Recovery Framework.** The Framework helps promote effective governance of the recovery process as this specifies the recovery protocols,

roles of stakeholders, and tools to use for planning. In the case of Guatemala, the country adopted a National Disaster Recovery Framework in 2013 and was effectively put into practice during the recovery from the San Marcos Earthquake of 2014. The same municipality was impacted by earthquake in 2012. The Framework facilitated a more effective recovery for the following reasons: (i) it resulted to a more coordinated role sharing among agencies of the public sector due to prior knowledge and understanding; (ii) it allowed better distribution of resources in short-term and mid-term phases; and (iii) it reduced information gaps. With Guatemala's experience and readiness to build back better, the country was able to provide technical assistance for recovery in neighboring Ecuador following the earthquake in April 2016.

"Build Back Better" in the Chair's Summary of the Global Platform

As indicated in the Chair's Summary, risk information contributes to recovery preparedness and guides efforts to "build back better". However, in order to be effective, build back better efforts require a whole of society approach, including the engagement of all stakeholders, strong partnerships to support scientific and technical research and its applications, and clear political commitment before and after disasters. In addition, the following important elements are identified in the Chair's Summary to enhance build back better efforts:

- Risk-informed preparedness and recovery plans
- Strengthened multi-stakeholder platforms at both national and local levels, in accordance with Sendai Framework, for effective collaboration and coordination among national, local governments, and communities
- Having a policy framework and legal system for reconstruction in place in advance to facilitate the recovery process
- Community capacity development
- Local ownership

While the IRP side event provided inputs to the discussions in relation to Priority Four of Sendai Framework within the GP2017, direct inputs were derived from the Special Sessions on Enhancing Disaster Preparedness for Effective Response and to 'Build Back Better' in Recovery, Rehabilitation, and Reconstruction. This Special Session was co-chaired by Japan, Ecuador and a representative from Private Sector. Comprising high-level speakers from Zambia, Jordan, USA, and the European Commission, the session came up with the following seven recommendations: i) enhancing disaster preparedness for effective response and to "Build Back Better" in recovery is important for achieving the global targets in Sendai Framework. In particular, the urgency of ensuring preparedness and recovery plans are risk-informed by 2020 is key to achieving target (e); ii) multi stakeholders' platform for policy dialogue both at national and local levels is effective for collaboration; iii) all of society engagement including women, persons with disabilities, and indigenous people should be secured; iv) importance of preparing a policy framework and legal system for reconstruction before an event (pre-disaster recovery planning embedded under policy framework); v) importance of capacity building in

communities; vi) international cooperation for disaster risk reduction was pronounced. A large-scale disaster might be beyond the capacity of one country, and in many cases, damage itself, goes beyond boundaries; vii) implementation in coherence with policies for "Sustainable Development Goals" and "Climate Change".

Corollary to this, the consultative version of Sendai Framework Words into Action on “Build Back Better” in recovery. The guidance outlines four related tasks. The first task is to develop an all-stakeholder, national-level disaster recovery framework (DRF). The second task is to enable and foster pre-disaster recovery planning (PDRP) efforts among all stakeholders. The third task is to institutionalize formal and inclusive processes and systems to effectively assess post-disaster damages and needs to formulate broad recovery strategies. The fourth task is to institute or strengthen policies, laws, and programs that promote, guide, and support build back better in both the public and private sectors, at various levels. This consultative version is for further inputs by community of practice.

6-3-3. IRP/ADRC Engagement at the Third World Reconstruction Conference (WRC3)

The International Recovery Platform (IRP)/ADRC had actively participated in the third edition of the World Reconstruction Conference (WRC3), 6-8 June 2017 in Brussels, Belgium. IRP extended support in organizing and documenting a number of sessions, including: (i) An Update from 2017 Global Platform for Disaster Risk Reduction (GP2017); (ii) Livelihood Recovery and Social Protection; (iii) Private Sector as a Key Partner in Preparedness, Response and Recovery; (iv) Preparing and Planning for Recovery - Strengthening Institutions and Capacities; and (v) Policies and Institutional Arrangements for Recovery. At the session for an update from GP2017 organized by UNISDR, the Chair of IRP Steering Committee presented on the engagement of IRP with GP2017.

Fig.6-3-3. Plenary Session

The discussions at the sessions during WRC3 demonstrated how the concept of “build back better”, which is highlighted in Priority Four of the Sendai Framework, can be implemented in transformative manner that reduces risks and builds resilience, while need to be mindful that the next disaster may be of different nature from the previous one. Based on a number of experiences shared at the sessions, it was explicitly shown that build back better is not only about upgrading infrastructure with disaster resilient construction technologies but also about stronger governance

systems, improved basic services, support for diversified livelihoods, and better social protection mechanisms for the poor and vulnerable families. There are many factors that can contribute to a successful build back better effort by governments, including enhancing the:

- Ability to develop specific institutional, policy, and legal frameworks for recovery process
- Capacity to support recovery interventions efficiently and effectively so that these support to be sustainable
- Ability to coordinate multiple stakeholders that support and bring financial and technical resources to implement recovery programs

It was affirmed in the plenaries and sessions that one of the contributory factors to achieve "resilient recovery" (the overarching theme of WRC3) is the degree of preparation for recovery. "Preparedness for recovery" – as promoted in countries like India, Japan, USA, and New Zealand that have developed a well-planned and a well-resourced institutional and financial system – means putting in place the following instruments prior to disaster:

- Institutions, policies, and laws on recovery
- Financial mechanisms for recovery
- Dedicated personnel and resources for recovery

At the final day of the WRC3, this question was debated: What can we do to make recovery resilient? Obviously a generic solution is not possible because recovery is a complex and integrated process. As already known based on past experiences, various factors need to be considered to make recovery resilient such as: (i) preparedness and readiness to recover; (ii) context and capacity; (iii) systems and institutions; (iv) localization; and (v) inclusiveness or "all of us". The complexity of recovery process may call for context-specific strategies and actions for resilience. For instance the World Bank, in the context of urban resilience, suggested the following actions to make recovery resilient for cities and urban communities:

- Prepare the community, e.g. raising awareness and drills
- Build institutions, e.g. recovery agency/department
- Create a financing system, e.g. financing facility for recovery
- Invest in recovery, e.g. mitigation efforts
- Social protection, e.g. inclusion of vulnerable groups in the whole process As way forward, the participants at the WRC3 may take the cue from message of the European Union Commissioner for Humanitarian Aid and Crisis who recommended three key action points:
- Strengthen Resilience
- Understand Risk
- Work with Private Sector

6-3-4. Messages on Build Back Better at the National Conference on Promoting Disaster Risk Reduction 2017 (Bosai Kokutai)

To further share knowledge products and engage in discussions concerning “Build Back Better” in recovery, the International Recovery Platform (IRP)/ADRC set up a booth and participated in the National Conference on Promoting Disaster Risk Reduction 2017, which was held on 26-27 November in Sendai City, Japan. With the theme Preparing for Large-scale Disasters: Collaboration is the Power for DRR, the event attracted about 10,000 people including children, families, experts, community-based actors, government officials, and other stakeholders from various fields such as science, technology, culture, finance, education, leadership as well as participants from over 40 countries.

At the IRP booth, more than 150 copies of CD Rom (the compilation of knowledge products by IRP for build back better in recovery) was distributed. A number of people including students and researchers from Asian countries including Sri Lanka, India, and Philippines visited the booth to lean about IRP activities and its knowledge products.

Fig.6-3-4. Exhibition Booth

At the opening session (jointly conducted with the World Bosai Forum opening), lessons on recovery from the Great East Japan Earthquake of 2011 was emphasized.Highlighted in the opening session were specific lessons that highlighted the application of “Build Back Better” principles including: volunteer coordination; risk-zoning of coastal areas; proactive efforts to rebuild old industries and stimulate new ones; use of business continuity plans for business resilience; and leveraging community through social capital for sustained activities. The following are some of the key messages on *Build Back Better* from the conference:

- In promoting Build Back Better, it is necessary to have various new methodologies for the reconstruction of livelihood and business, such as mutual insurance and the application of information and communication technology (ICT) to share information effectively.
- International collaboration in sharing best practices on Build Back Better for urban development is important for rebuilding society and economy after disasters.

The need to continue raising public awareness and education was also frequently mentioned in the conference, along with the task of creatively recording and communicating the intensely-felt human experience of disasters. Discussions in the conference also remarked that innovations on *Build Back Better* that addressed past shortcomings need to be recognized and shared globally.

6-3-5. Build Back Better Experiences Shared at the World Bosai Forum

During the World Bosai Forum (WBF) in Sendai City, Japan on 25-28 November 2017, the International Recovery Platform (IRP) was engaged by making a presentation on IRP at the Flash Talk and participating in plenary sessions and study tours.

Practical Build Back Better Efforts of Sendai City

This plenary session emphasized some practical Build Back Better projects to improve evacuation management, livelihood support, and community preparedness in the event of disaster. The following are some of the many recovery initiatives and projects taking place in Sendai City.

Evacuation Manuals: Prior to the earthquake, evacuation centers were supposed to be managed by respective Ward Offices only. However during the earthquake, it was found that many local organizations wanted to extend help but there was no guide or manual that specifies the various roles and functions needed in evacuation centers. Sendai City addressed this concern by developing an "operations manual" for evacuation centers. Activities including drills, planning, and collaboration with local organizations and companies are specified in the manual.

Livelihood Support Program: The disaster caused many residents to move to temporary housing and others to be relocated in safe locations. To address livelihood concerns of victims (as well as similar concerns in the future), the Sendai City Government established a Livelihood Support Program that built a system of information sharing among stakeholders including Sendai City Government, local institutions, organizations, and NPOs to facilitate a more collaborative support program. Among the specific projects/activities under the program are: job assistance center, community work salon, community good neighbor project. Some centers were also established such as Job Consultation Center, Lifetime Meaningful Work Support Center (for victims aged 65 years and above), and Livelihood Support Center.

Memorial Projects: The disaster experience in Sendai offers a lot of lessons that can be referred to as the basis for Build Back Better. It also offers deep insights for disaster preparedness. Sendai City Government wants to ensure that these lessons are never forgotten. Hence, many memorial projects were initiated. Among these are the preservation of physical ruins (e.g. the Arahama Elementary School), building of memorial facilities and museums (e.g. Memorial Community Center in Arai), documentation materials (e.g. books and memorabilia), and annual commemoration activities (e.g. HOPE FOR project).

Efforts Towards Recovery and Reconstruction

This session puts emphasis on similar recovery and reconstruction projects focusing on infrastructure and community development. The speakers in this session were the Mayor of Rikuzentakata City of Iwate Prefecture, Mayor of Ishinomaki City of Miyagi Prefecture, and Mayor of Shinchi Town of Fukushima Prefecture.

Infrastructure Projects: Most areas of these localities were devastated by the tsunami and experienced high number of causalities. In order to facilitate more effective evacuation, the following improvements in infrastructure were made in these localities:

- Widening and designating more evacuation routes
- Land and road elevation
- Rebuilding of seawalls and levees

Memorial Projects: All three local governments reported constructing memorial projects, among those common are:

- Memorial Parks
- Facilities for Praying and Mourning

In addition to these projects, there are also community development projects that are unique to each of the local governments. For instance in Rikuzentakata City, the lone pine tree that survived the tsunami "Ippon Matsu" is widely promoted through memorabilia. In Ishinomaki City, four "Community Exchange Centers" highlighting the recovery process of the city were built. In Shinchi Town, the "Recovery Story Book" project was organized, where stories of families and individual experiences were documented.

All the examples illustrate how Build Back Better can be applied in recovery and reconstruction, particularly infrastructure and community development following a disaster.

IRP Flash Talk Presentation

The presentation introduced IRP as an international mechanism for sharing experiences and lessons on Build Back Better in recovery, rehabilitation, and reconstruction. Specifically highlighted in the presentation was IRP's role as a knowledge sharing platform on recovery by showing case studies, guidance notes, tools, reports, and related resources that are easily accessible to governments, policymakers, practitioners, academics, and the wider community of practice. The presentation also showed specific examples of Build Back Better measures that were integrated into the restoration of physical infrastructures, societal systems, and for the revitalization of livelihoods, economies, and the environment.

Fig.6-3-5. Flash Talk Presentation

7. Awareness raising by diverse media and conferences

In order to enhance awareness raising by addressing a wider range of audiance,, and thus to contribute further to international efforts for disaster risk reduction, ADRC has been using the mass media, while actively participating in international conferences and events.

7-1. Promotion through Mass Media

ADRC made active efforts to obtain TV, radio, newspapers and media coverage to inform widely its activities not only to disaster reduction practitioners but also to the general public. Major activities and reports throughout the fiscal year 2017 are listed below.

Table.7-1-1. TV/Radio Coverage

Media	Date	TV/Radio Station	Description
TV	Jan. 24, 2018	NHK	International Recovery Forum 2018 (IRF2018) was introduced in “NEWS KOBEHATSU” and “HYOGO NEWS 845”
TV	Mar. 11, 2018	NHK	“Inamura no Hi” was introduced in “Korede wakatta sekai no ima”

Table.7-1-2. Newspaper and Magazine Coverage

Date	Name	Features
Sep. 26, 2017	NIKKAN KOGYO SHIMBUN	The Cabinet Office, Government of Japan announced that the Asian Conference on Disaster Reduction 2017 (ACDR2017) will be held in Baku, Azerbaijan in cooperation with ADRC and Azerbaijan government on October 2nd and 3rd.
Oct. 2, 2017	AZERNEWS	The Asian Conference on Disaster Reduction 2017 (ACDR2017) has been held in Baku, Azerbaijan co-organized by Azerbaijan’s Ministry of Emergency Situations, Asian Disaster Reduction Center and Japan’s Cabinet of Ministers.
Oct. 2, 2017	AZERTAC	The Asian Conference on Disaster Reduction 2017 (ACDR2017) has been held in Baku, Azerbaijan co-organized by Azerbaijan’s Ministry of Emergency Situations, Asian Disaster Reduction Center and Japan’s Cabinet of Ministers.
Oct. 2, 2017	APA	The Asian Conference on Disaster Reduction 2017 (ACDR2017) has been held in Baku, Azerbaijan co-organized by Azerbaijan’s Ministry of Emergency Situations, Asian Disaster Reduction Center and Japan’s Cabinet of Ministers.
Jan. 24, 2018	NHK NEWS WEB	International Recovery Forum 2018 (IRF2018) was held in Kobe to discuss disaster prevention and recovery.
Jan. 24, 2018	Kobe Shinbun NEXT	International Recovery Forum 2018 (IRF2018) was held in Kobe, Japan with about 110 participants.
Jan. 25, 2018	Kobe Shinbun	International Recovery Forum 2018 (IRF2018) was held in Kobe, Japan with about 110 participants.
Feb. 12, 2018	Hyogo journal	International Recovery Forum 2018 (IRF2018) hosted by IRP, Cabinet Office, Hyogo prefecture, etc., was held in Kobe, Japan on January 24.

7-2. Participation in International Conferences and Contribution to Magazines

In order to develop organic networks with international organizations and NGOs in addition to member countries, ADRC attended the following international conferences and contributed to magazines to increase its presence and to participate in discussions with relevant organizations on international cooperation for disaster risk reduction.

Table.7-2-1. Participationin International Conferences

Conference	Date	Venue	Sponsors	Attendee	Contributions
ISDR Asia Partnership (IAP) meeting of 2017	April 5-7, 2017	Mongolia, Ulan Bator	UNISDR Asia Pacific	Ms. Kondo	Reported ADRC updates, and many bilateral exchanges with ADRC member countries and relevant organizations.
Technical Meeting of Sentinel Asia	Apr 27 2017	Thailand, Bangkok	JAXA	Mr. Arakida	Discussed about web tools with the secretariat
2017 Global Platform for Disaster Risk Reduction	May 24-27, 2017	Mexico, Cancun	UNISDR	Ms. Kondo	Reported ADRC statement, and many bilateral exchanges with ADRC member countries and relevant organizations.
The 12th Annual Meeting of the Working Group on Disaster Risk Reduction by the UNESCAP/WMO Typhoon Committee	May 30-31, 2017	Korea, Ulsan	The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the World Meteorological Organization (WMO) TC Secretariat and the National Disaster Management Research Institute(NDMI) , Korea	Ms. Shiomi	Reported on their recent public awareness and education activities. shared activity updates on WMO,NDMI and other DRR organizations.
ERIA Technical Workshop and CAPSA-MARDI Regional Training Workshop	July 17-18, 2017	Malaysia, Putrajaya	UNESCAP, CAPSA, ASEAN, ERIA, MARDI	Ms. Shiomi	Reported about the loss assessment within the ASEAN region, as an interim report
APEC Emergency Preparedness Working Group and other relevant meetings	Aug 17-22, 2017	Viet Nam, Ho Chi Minh	APEC	Ms. Kondo	Prepared and chaired the EPWG meetings as one of co-chairs. Attended relevant meetings by representing EPWG and reported about the activities
APEC workshop, APEC Senior Disaster Management Officials Forum	Sept 19-22, 2017	Viet Nam, Hanoi, Vinh	APEC	Ms. Kondo	Prepared and attended the meetings as EPWG co-chair and chaired one of the session

Technical Meeting of Sentinel Asia	Oct 5 2017	UAE, Dubai	JAXA	Mr. Arakida	Shared information of Space technology and utilization to DRR
Joint Workshop on Networking for Environmental Sustainability Cooperation in East Asia entitled "Reflection and improvement on transnational networking for Environmental sustainability cooperation in East Asia"	Oct 12, 2017	Korea, Seoul	SEJONG Institute (Korea) and Institute of Developing Economies (Japan)	Mr. Ueda	Reported "The role of ADRC in trilateral cooperation on disaster prevention and reduction: focusing on the nexus of environment and disaster"
7th Annual UN-SPIDER Conference and Visited Relevant Organizations	Oct 24-26, 2017	Chin, Beijing	UNOOSA and the Ministry of Civil Affairs of the People's Republic of China	Mr. Ueda	Reported ADRC has been playing the role of Regional Support Office (RSO) of UN-SPIDER through the initiative of Sentinel Asia
Typhoon Committee	Oct 30-31, 2017	Korea, Jeju	UNESCAP, WMO TC Secretariat , Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) and the Local Organizing Committee of Cebu	Ms. Kondo	Report on Japanese typhoon, government response to torrential rain in Kitakyushu etc.
Constructing A Community of Shared Future in East Asia: China, Japan and South Korean Search for Social Reconciliation and Cooperation	Nov 4-5, 2017	China, Hangzhou	Department of Faculty of Social Science and School of Public Administration, Zhejiang University	Mr. Ueda	reported the present status and challenges of international cooperation in disaster reduction, by highlighting the backgrounds Asian Disaster Reduction Center and activities
Technical Meeting of Sentinel Asia	Nov 6 2017	Thailand, Bangkok	JAXA	Mr. Arakida	Discussed about web tools with the secretariat
24th Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-24)	Nov 14-17, 2017	India, Bengaluru	Department of Space (DOS), Indian Space Research Organization (ISRO), Ministry of Education, Culture, Sports, Science and Technology (MEXT), and the Japan Aerospace Exploration Agency(JAXA).	Mr. Ikeda	Reported on Trends in Emergency Observation Requests of Sentinel Asia.

Global Forum on Science and Technology for Disaster Resilience 2017	Nov 23-15,2017	Japan, Tokyo	Science Council of Japan (SCJ), United Nations International Strategy for Disaster Reduction (UNISDR), Integrated Research on Disaster Risk (IRDR), Public Works Research Institute (IRDR) and National Research Institute for Earth Science and Disaster Resilience (NIED)	Ms..Kondo	ADRC reported on the status and possibilities of using GLIDE
Sentinel Asia SC meeting	Dec 13-14, 2017	Thailand, Bangkok	JAXA	Ms.Kondo	ADRC reported about the progress on the Communication and coordination related activities in the Strategic Plan.
UNISDR- IAP meetng	Dec 14-15, 2017	Thailand, Bangkok	UNISDR	Ms Kondo	ADRC reported activities based on the Sendai Framework after the previous IAP meeting.
APEC Emergency preparedness working group meeting	Feb 25-26, 2017	Port Moresby, PNG	APEC	Ms.Kondo	ADRC reported forJapoan on recent disasters, future of GLIDE、GLIDE, asa well as the progress of the APEC project. ADRC also reported about the future DRR priorities of ADRC members.

Table.7-2-2. Academic Conferences and Symposium

Conference	Date	Venue	Sponsors	Attendee	Contributions
World BOSAI Forum / IDRC 2017 in SENDAI	Nov 27, 2017	Sendai International Center	Japan Society of Civil Engineers	Mr. Arakida	Presentation regarding Past and Current Activities and Future Plans of TC21
Asian Conference on Urban Disaster Reduction (ACUDR) I	Nov 27, 2017	Sendai International Center	Institute of Social Safety Science (ISSS)	Mr. Arakida	Presentation regarding Town-Watching for Disaster Risk Reduction Utilizing ICT Tool

ADRC

Higashikan 5F., 1-5-2 Wakinohamakaigan-dori,
Chuo-ku, Kobe 651-0073, JAPAN
Tel:+81(78)262-5540/Fax:+81(78)262-5546
E-mail : rep@adrc.asia
http://www.adrc.asia