Asian Disaster Reduction Center
2015 ANNUAL REPORT

Foreword

In recent years, natural disasters such as massive typhoons, high tidal waves, large land slides, heavy rains and snowfall have risen in frequency and severity, resulting from the changes of natural environment as well as social circumstances.

After the Third World Conference on Disaster Risk Reduction(WCDRR) in 2015, we expand our activities along with Sendai Framework adopted as new guidelines for disaster risk reduction by strengthening the partnerships among the member countries.

As one of the follow-ups to the WCDRR in Sendai and the 2030 Agenda for Sustainable Development, a resolution designating November 5th as the World Tsunami Awareness Day was jointly proposed by 142 countries and adopted at the UN General Assembly. Effective tsunami disaster risk reduction requires multi-sectoral and inter-disciplinary efforts by sharing lessons learnt from disasters in the past. For this purpose, in this February, we hold the Asian Conference of Disaster Reduction in Phuket, which was one of those significantly affected by the Indian Ocean Tsunami in 2004. Thanks particularly to Department of Disaster Prevention and Mitigation(DDPM), Thailand, we learned with each other the efforts made by the affected countries towards reconstruction and those for preparedness against the disasters we may face in the future.

Many of the ADRC member countries are encountering risks of mega disasters that could bring about cross border damages. Asian countries need to be well prepared to collaborate in facing all kinds of mega-disasters and support with each other.

It will have been nearly two decades since ADRC was founded in 1998, three years after the Hanshin Awaji Earthquake. DRR challenges that Asian countries will face for the next 20 years will not be the same as those in the past 20 years. The unprecedented economic growth, rapid urbanization, and increasing number of megacities are leading to higher vulnerability. In order to discuss strategies for another twenty years, proactive participation of member countries is essential.

As ADRC chairman, I sincerely appreciate your continued support and collaboration to build a more resilient society for the future generations.

March 2016

Masanori Hamada, Chairman

Asia Disaster Reduction Center

Contents

1. Asian Disaster Reduction Center

1-1. History of the Establishment of ADRC

The 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 a 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 experts 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 the specific activities of the proposed central 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 office in Japan to serve as the secretariat for the proposed system.

(6) Establishment of ADRC

With momentum gathering from this series of meetings, the Japanese government 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 2-2-1 Counterpart List of member countries

country	organization
Armenia	National Survey for Seismic Protection (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 Emergency Situations
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
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. 2-2-1 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 2015/2016

2-1. Disaster and Measures in Nepal

2-1-1. Overview of Nepal Earthquake and Damage

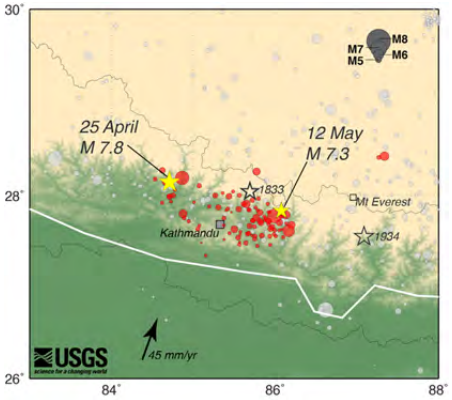

Fig. 2-1-1. Epicenter of Nepal Earthquake

An earthquake with a magnitude of 7.8Mw occurred at Gorkha district at 11:56, 25 April 2015, approximately 77 km northwest of Kathmandu, followed by the largest aftershock at 12:51, 12 May 2015 with a magnitude of 7.3Mw at Sindhupalchowk district, approximately 40km east-northeast of Kathmandu..

The total number of deaths was 8,891, the number of injuries was 22,302, approximately 600,000 houses were totally collapsed, and 28 million houses were partially destroyed. Many historic buildings and cultural heritage were also damaged, and the road were disrupted in many places with a lot of landslides. China, India, Bangladesh, and Bhutan were also affected by the earthquakes.

The Nepali government estimated the total economic damage caused by the earthquake amounted approximately to 10 billion dollars (GDP of Nepal in 2012-2013 was 19.2 billion dollars). Also, the Asian Development Bank (ADB) estimated that the real GDP growth of Nepal in 2014-2015 was revised downward by 0.8 percentage point as a result of the earthquake, and estimated to be 3.8% . It is expected that the earthquake has caused a serious negative impact on the economy of Nepal.

2-1-2. Correspondence of the Nepal government

The Central Natural Disaster Relief Committee (CNDRC) met two hours after the earthquake, and four hours after the earthquake, the Council of Ministers held its meeting.

The CNDRC organized by all the relevant ministries and agencies, decided key policies of the relief and rescue, emergency medical services and temporary shelter provision in the affected areas.

Consolation payment was given to the victims in accordance with the degree of damages and Materials and equipment for shelter construction were provided.

National Reconstruction Agency (NRA) has been established since December 2015, and the reconstruction promotion system has been strengthened.

In order to facilitate housing reconstruction, donation of 200,000 rupees per one house has also been started.

2-1-3. Response of the international community

The international rescue teams from 34 countries were dispatched, which saved 16 people and

provided disaster medical services. In addition, food from 19 countries, relief supplies from 20 countries were provided.

Furthermore, International Conference on Nepal reconstruction was held in Kathmandu on 25 June 2015, and many participating international organizations and countries offered donations and emergency grant aid. Nepal government explained that the demand for funds necessary for recovery and reconstruction would amount approximately to $ 6.7 billion, while donors pledged their support of approximately $4.4 billion in total.

2-1-4. Current situation of victims

The affected areas are largely mountainous, where majority of residents engages in agriculture at the slopes originally developed by landslides. They had lived in wooden and brick houses without consideration of seismic resistance. After the disaster, blue sheets or Corrugated Galvanised Iron (CGI) sheets provided, and the timbers taken out from the rubbles are used for making the temporary shelters by themselves.

Fig. 2-1-2. Temporary shelter in Laplak VDC

Small water supply system and solar panels have been made available by the assistance of donors, and reconstruction of earthquake resistant housing has been started by using the Housing Reconstruction donations from April 2016.

2-1-5. ADRC activities

ADRC conducted the emergency observation by satellite after Nepal earthquake through the framework of Sentinel Asia.

ADRC also supported to strengthen DRR capacity at community level through two JICA technical cooperation projects. The first one is to promote disaster education and the establishment of early warning system for the village facing high risk of landslides in Gorkha and Sindhupalchowk district, main affected area by the earthquakes. The other one aims at disaster education for capacity development and knowledge building to prepare for major earthquake in the Kathmandu Valley in the future.

Fig. 2-1-3. Nepal Presentation at ACDR2016

In addition, at the occasion of the Asian Conference on Disaster Reduction 2016 (ACDR2016), held in Phuket in February 2016, Nepal participant made a presentation of overview on the damage of the Nepal earthquake, one year efforts after the Nepal earthquake, and further challenges. Through this opportunity, participants shared lessons learnt from the earthquake and countermeasures.

2-2. Asian Conference on Disaster Reduction 2016

Information sharing among member countries, advisor countries, and other relevant organizations is indispensable for strengthening the network of people working for disaster risk reduction in Asia. ADRC convenes an annual international conference attended by disaster risk management officials from member countries and disaster experts from international organizations to promote sharing of information and ideas, and to enhance partnerships among participating countries and organizations. The Asian Conference on Disaster Reduction (ACDR) 2016 was held in Phuket, Thailand during 25-26 February 2016. The conference was organized jointly by the Government of Thailand, the Government of Japan, the United Nations Secretariat of the International Strategy for Disaster Reduction (UNISDR), and ADRC. The 98 participants included high level government officials from 24 countries, as well as representatives of international and regional organizations, the academic community, and the private sector.

The key topics addressed at ACDR2016 were as follows:

1. Mega-disasters
2. Strengthening DRR through capacity development training and education
3. Science and technology supporting CBDRM: Upgrading DRM at the local level

Fig.2-2-1. Participants of ACDR2016

ACDR2016 began with opening remarks by Dr. Masanori Hamda, ADRC Chairman, followed by remarks from Mr. Julio Surje of UNISDR, Dr. Masao Nishikawa, Vice-Minister for Policy Coordination of the Cabinet Office of Japan, and H.E. Mr. Sutee Makboon, Deputy Minister of Interior of Thailand. The keynote session featured presentations by Dr. Narayan Bahadur Thapa, Under Secretary, Ministry of Home Affairs of Nepal, Dr. Masao Nishikawa, and Mr. Suporn Ratananakin, Advisor to the Director General of Thailand's DDPM.

Session one focused on Asia, which is facing rapid economic growth and progressive urbanization, leading to increased risks. In this session, participants shared lessons for DRR efforts in all phases of disaster, including preparedness, emergency response, recovery,

reconstruction, and development, based on the diverse experiences of member countries.

In session two, through the discussion of issues and efforts of member countries, regional organizations, and academia, the following suggestions were made for promoting DRR training and education in Asia: (1) Provide more opportunities to learn good practices and lessons learned from disaster experiences, (2) Promote regional cooperation to avoid the duplication of opportunities, (3) Effectively utilize world class training institutions for providing quality training, and (4) establish internationally compatible academic degrees in DRR to encourage students who are willing and motivated to learn about DRR.

Session three focused on enhancing CBDRM approaches and the utilization of advanced technologies such as on-site visualization using light-emitting sensors, internationally standardized landslide early warning systems, unmanned aerial vehicle and drones, and integrated information communication technology platforms. These technologies are essential for improving the ability of communities to cope with new DRR challenges.

Closing remarks were given by Mr. Suporn Ratananakin, Advisor to the Director General of the DDPM of Thailand. ACDR2016 was a great success thanks to the important contributions of all the speakers and the active involvement of all participants.

ACDR2016 documents and the final conference summary are available on the ADRC website at http://www.adrc.asia/acdr/2016_index.html.

3. Collection and Dissemination of Disaster Information

ADRC has been disseminating many different types 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 2015, 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 collected relevant information regarding progress of Hyogo Framework for Action (HFA), Sendai Framework for Action (SFA) and the latest DRR activities by participating in international conferences such as the Third UN World Conference on Disaster Risk Reduction (WCDRR) and the Asian Conference on Disaster Reduction which was held in Sendai, Japan on March 2015.

(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 been using

Facebook as one of major social network services for providing the latest activities of Visiting Researchers.

In fiscal year 2015, ADRC continued gathering information on disaster risk reduction systems of member countries through requesting informations, field surveys, international conferences, and internet. Furthermore, ADRC updated country reports in cooperation with Visiting Researchers.

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

Country	Year prepared
Armenia	2001, 2002, 2003, 2005, 2006, 2010, 2012, 2015
Azerbaijan	2011, 2014
Bangladesh	1998, 1999, 2001, 2003, 2005, 2006, 2010, 2011, 2013
Bhutan	2008, 2013, 2014
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
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
Papua New Guinea	1998, 1999, 2005, 2006
Philippines	1998, 1999, 2002, 2003, 2005, 2006, 2009, 2010, 2011, 2012, 2014
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
Tajikistan	1998, 1999, 2003, 2005, 2006
Thailand	1998, 1999, 2003, 2004, 2005, 2006, 2008, 2010, 2011, 2012
Uzbekistan	1998, 1999, 2005, 2006, 2013, 2015
Vietnam	1998, 1999, 2005, 2006
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 that may affect the country
  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

Past disaster records are critical data in policy making, review, survey and analysis of disaster management plan. ADRC has signed an MOU on disaster data utilization with the Centre for Research on the Epidemiology of Disasters (CRED) and 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.

This section presents a summary of Natural Disaster Data Book 2014, which covers regional and disaster-specific issues of the year and long term. The following Figures 3-1-2-2 and Tables 3-1-2-1 depict the results of analyses of national disaster and impacts in 2014.

According to EM-DAT recorded in 2014, 328 disaster events occurred, 18,740 people were killed, more than107 million people were affected and economic damage reached 97 billion USD.

In the year 2014, more than 10,000 people were killed by Ebola epidemic in Africa. In Asia, no disaster occurred that claimed more than 1,000 lives. The earthquake that hit in China in August 2015

resulted in the disaster with the largest fatalities of 731 of the year. It brought about 1,1 million affected people and economic loss of 5 billion USD.

By region, Asia had largest shares in disaster occurrence (43.6 %), killed people (31.3%), affected people (86.2%) and the amount of damages (65.8%) in 2014 as seen in Figure 1-3-2-2 and Table 1-3-2-1.

By disaster type, flood topped in disaster occurrences (41.3%) while in the number of people killed, epidemic had the largest share of 58.2%, and flood had the largest economic damage of 40.9%.

Compared with the previous year, in 2013, data shows increase in fatalities and decline in the numbers of disaster occurrences, people affected, and the amount of economic damages.

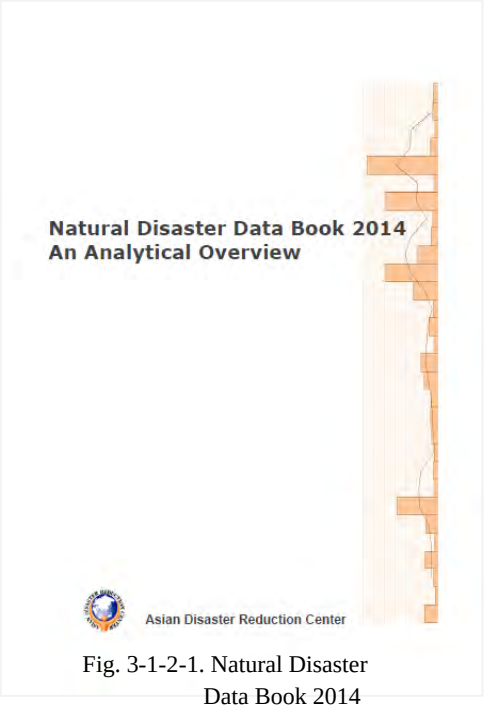

Fig. 3-1-2-1. Natural Disaster Data Book 2014

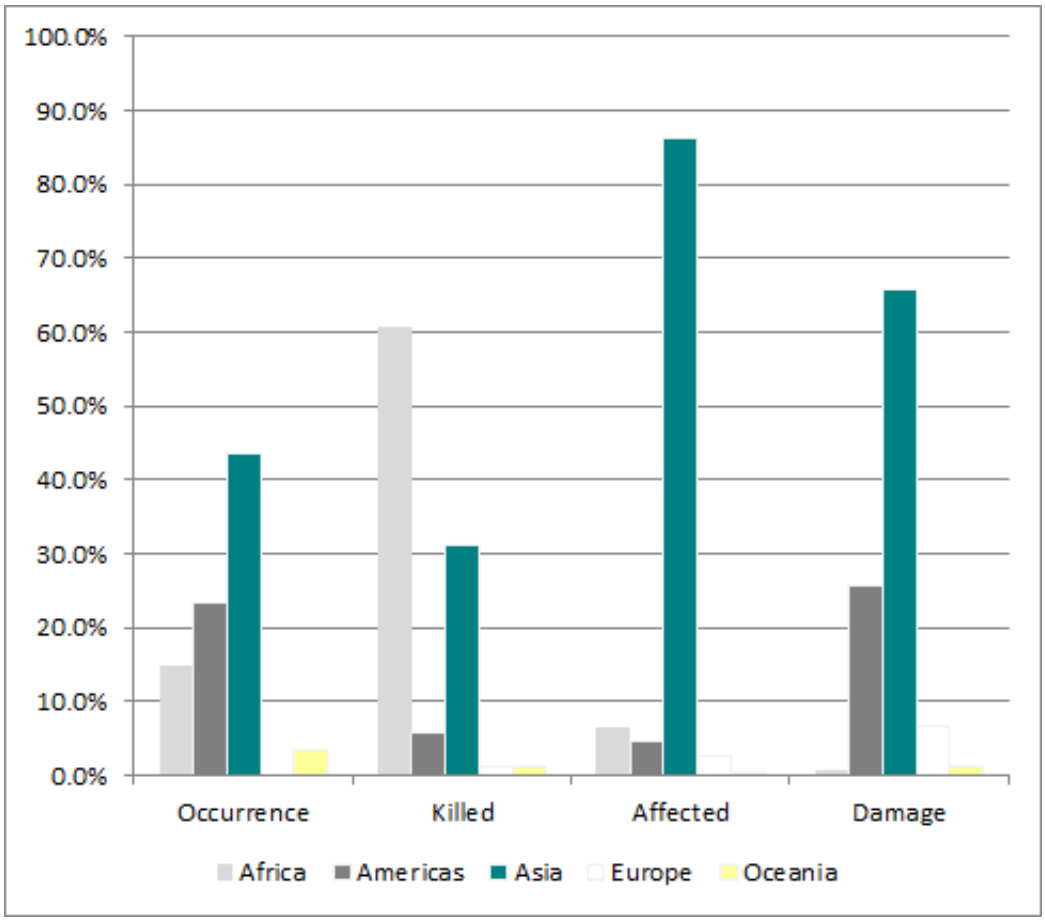

Fig. 3-1-2-2. Impacts of Natural Disasters by Region 2014

Table 3-1-2-1. Impacts of Natural Disasters by Region 2014

Region	*Impact*							
	Occurrence	(share in %)	Killed	(share in %)	Affected	(share in %)	Damage (US$ million)	(share in %)
Africa	49	(14.9%)	11,376	(60.7%)	6,817,848	(6.4%)	640	(0.7%)
Americas	77	(23.5%)	1,095	(5.8%)	4,968,997	(4.6%)	25,159	(25.8%)
Asia	143	(43.6%)	5,861	(31.3%)	92,520,523	(86.2%)	64,265	(65.8%)
Europe			207	(1.1%)	2,864,313	(2.7%)	6,473	(6.6%)
Oceania	11	(3.4%)	201	(1.1%)	170,033	(0.2%)	1,080	(1.1%)
Total	328	(100.0%)	18,740	(100.0%)	107,341,714	(100.0%)	97,616	(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 extent of the damage, the situation of the affected area and emergency response and relief is collected and disseminated by media, local and central governments, international organizations, research institutions, civil societies, NGOs, and so on in affected countries and throughout the world. Most of such information was usually provided individually and it took time and labor to get all the necessary information, whch prevented from agile data collection activities in case of emergency.

Under these circumstances, organizations such as the Centre for Research on the Epidemiology of Disasters, Centre for Research on the Epidemiology of Disasters (CRED) and the UN Office for the Coordination of Humanitarian Affairs (UNOCHA) have been gathering global disaster information to make disaster information.

ADRC has developed a database and published the latest disaster information on its website in order to contribute as a clearinghouse of disaster information from various sources since September 1998. Summarized information with direct links to the original information sources provided on its website enables rapid search and retrieval of information. In particular, the database provides a brief summary of disasters (dates, locations, and overviews), brief outlines of damage situations, link information categorized by reports/articles, geographic data, emergency relief information, urgent reports from ADRC member countries and graphic information. Such information is continually updated in accordance with further information release.

Figure 3-2-1-1 to Figure 3-2-1-4 shows information flow of ADRC's website starting from top page to related organizational information. The earthquake in Nepal, August 2015 was taken as example. In the top page, the disaster appears as latest disaster, linked to detailed information (Figure 3-2-1-1). The detailed information has links to 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 3-2-1-2 to 3-2-1-4).

The information originates mainly from announcements of disaster relevant organizations including the ADRC's 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 also links to the website page of the disaster management organization and the disaster management information within ADRC's website, which works 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 website using the satellite image data taken at the affected site after the natural disasters when the emergency satellite observation was conducted. The database provides information of more than 2,074 disasters in the world as of 21 January 2016.

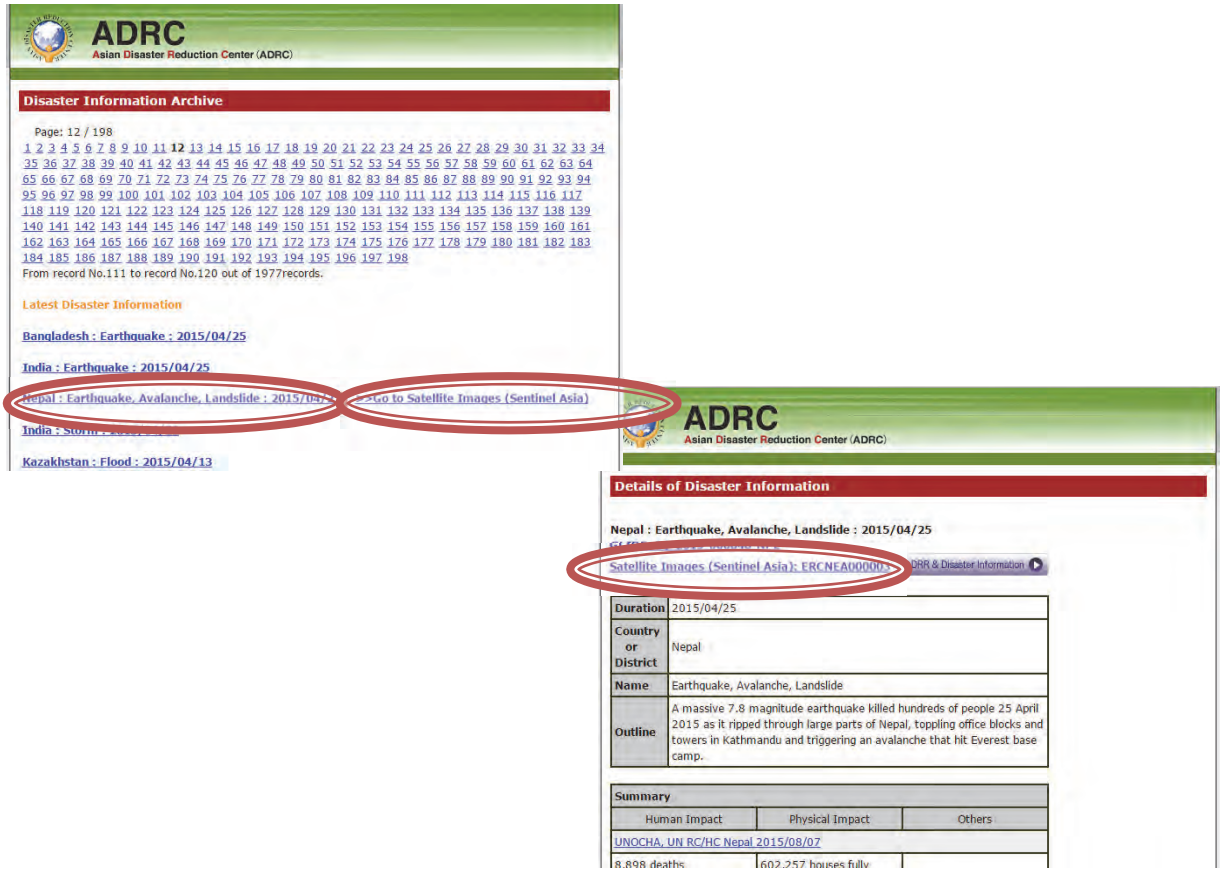

Figure 3-2-1-1 ADRC Latest Disaster Information (above) and

Details of Disaster Information (below)

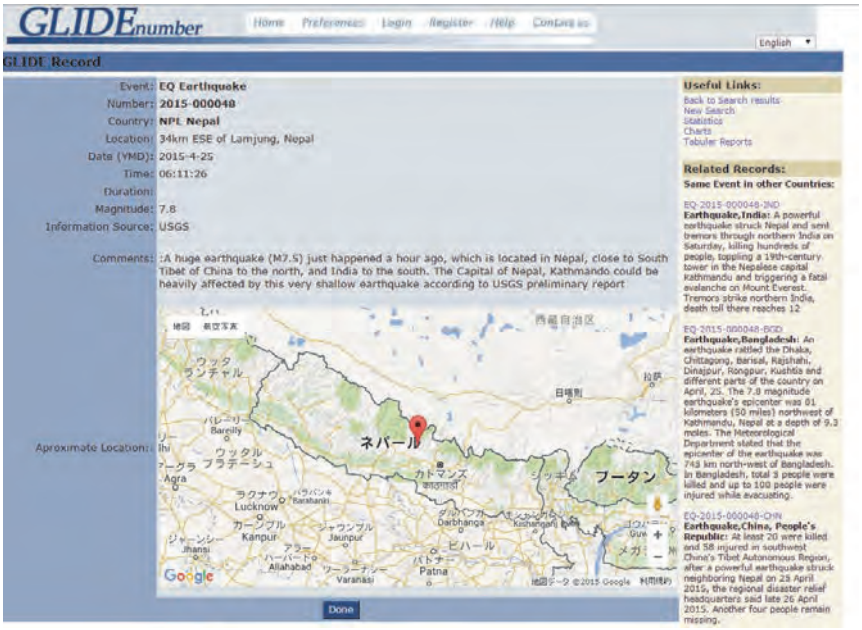

Figure 3-2-1-2 GLIDE Number of the disaster

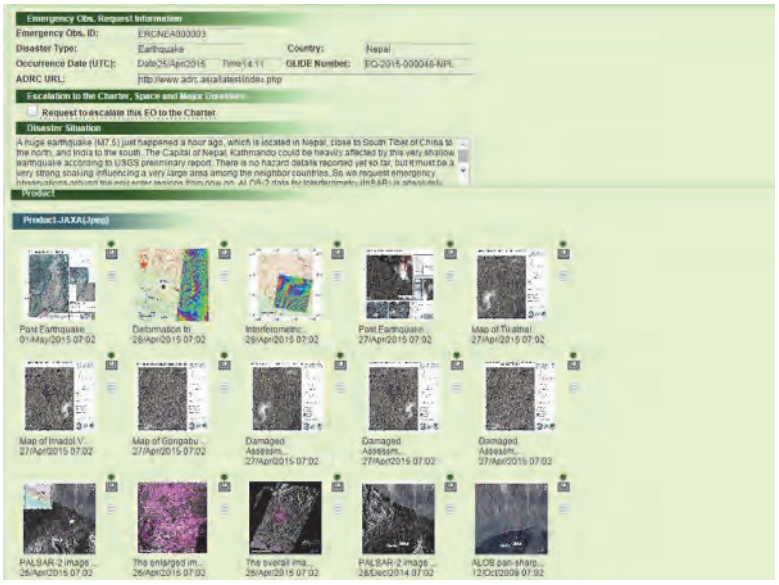

Figure 3-2-1-3 Satellite imageries of the disaster in Sentinel Asia

Figure 3-2-1-4 Information on Disaster Risk Reduction of the Member Country

3-2-2. Multilanguage Glossary on Disaster Reduction

(1) Provision of Multi-language Glossary on Natural Disasters

The Multi-language Glossary on Natural Disasters was compiled through the activities of the United Nation's IDNDR launched in 1990. It can be easily searched in six languages including Chinese, English, French, Japanese, Korean, and Spanish by choosing an input language and a target language. To make the glossary available to a broader audience, ADRC has been providing online translation services. The six-language glossary is thus now available on ADRC website.

The glossary contains technical terms which may be hard to find in ordinary dictionaries, and can be utilized by those working personnel in the disaster field to read technical documents related to Disaster Reduction.

(2) Native Language Activities by Visiting Researchers

Since 2008, ADRC has been compiling "Multilanguage Dictionaries" of the languages used in member countries with the help of the visiting researchers. The dictionary includes largely 1,130 basic "disaster reduction terms" based on English terms.

Side by side translation lists have already been completed by the visiting researchers from Bhutan, Kyrgyz (Kyrgyz and Russian), Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Uzbekistan, Vietnam, and Yemen (Arabic) by March 2016, and uploaded in the format of "Multilingual Dictionaries (Tentative)" on ADRC website separate from the "Multi-language Glossary." They are intended to serve as reference materials for disaster reduction activities in member countries.

Fig.3-2-2-1 Multi-language Dictionaries for Disaster Reduction (Provisional Translation)

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

ADRC has been using the Internet and e-mail to share information with its counterparts in the member countries, and other relevant parties. As one of its mainstay 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. 3-2-3-1 ADRC Highlights

(April 2015: 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 the 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 2,418, 205 and 909 respectively as of January 2016.

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 the ADRC visiting researchers from member countries. Several conferences which were coordinated by ADRC in the Third UN World Conference on Disaster Risk Reduction were reported in 2015.

Table 3-2-3-1 Headlines from ADRC Highlights (FY2015)

Vol.	Main Articles
265	1. Asian Conference on Disaster Reduction 2015 2. ADRC/IRP Participates in the Preparatory Meeting for the Earthquake Preparedness Conference in Metro Manila, Philippines
266	1. SATREPS Chile Project -Research Project on Enhancement of Technology to Develop Tsunami-Resilient Community- 2. ADRC Staff Profile No.46 -Mr. Kazuhito UEDA, Researcher
267	1. ISDR Asia Partnership (IAP) meeting 2. ADRC/IRP Promotes and Implements Multilateral Cooperation on Disaster Reduction and Recovery through participation in the Indian Ocean Rim Association (IORA)-led International Conference in Tanzania
268	1. Town-Watching for Disaster Reduction
269	1. JICA Knowledge Co-Creation Program: Raising Awareness of Disaster
270	1. Greetings from new ADRC Executive Director, Ms. Kyoko KONDO 2. JICA's Knowledge Co-Creation Program on “Comprehensive Disaster Management for Central Asia and the Caucasus 2015” 3. ADRC Visiting Researcher Report -Mr. Vigen Harutyunyan (Armenia) 4. ADRC Internship, Ms. Norika Yamamura 5. ADRC Internship, Mr. Krisztian Benyo
271	1. ADRC Visiting Researcher Report -Mr. Fozilov Elyor (Uzbekistan) 2. ADRC Visiting Researcher Report -Mr. Tahir Mehmood (Pakistan)
272	1. The First Steering Committee (FSC) Meeting of the Sentinel Asia Step 3
273	1. Sentinel Asia Initiative Tsunami Working Session and the 22nd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-22) 2. Demonstration of a Push-Type Information Dissemination Device in the Kurihama Neighborhood of Yokosuka City, Kanagawa Prefecture
274	1. Happy New Year 2016 -Masanori HAMADA, Chairman, ADRC 2. ADRC Visiting Researcher Report -Mr. Chathura Liyanaarachchige (Sri Lanka)

275	1. ADRC Visiting Researcher Report - Mr. Andrew Lalhruaia (India) 2. ADRC Visiting Researcher Report - Mr. Mohamed Inayath (Maldives)
276	1. Asian Conference on Disaster Reduction 2016

3-3. Transmitting Image of Disaster Area and Offering Image Analysis Technique

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 and whether the emergency observation should be implemented mainly for the assessment of damages and casualties. 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.

Against this backdrop, ADRC, as a UN-SPIDER RSO, should 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.

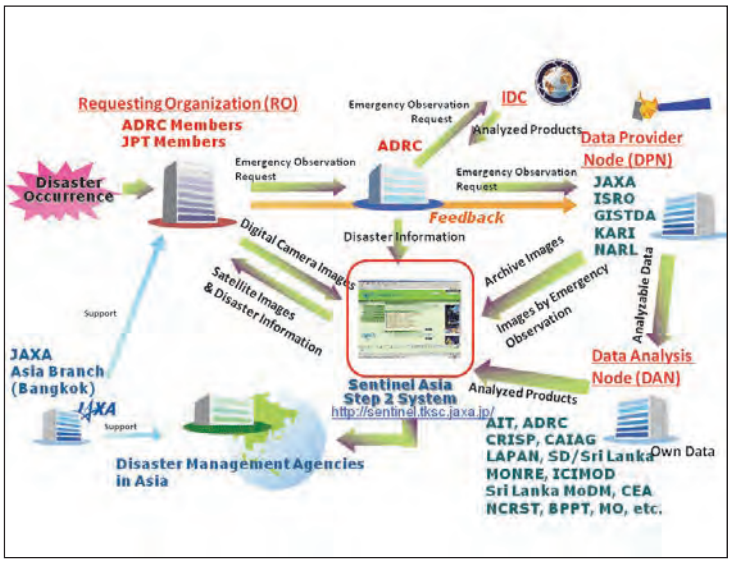

Fig. 3-3-1-1. Flow of emergency observation

(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 is based on the experiences and users' demands during the Step2 as well as the following concepts.

-Continuation of Step2 activities as the basis idea

-Expansion to cover not only phase of response (as in Step1 and Step2) but also mitigation/preparedness and recovery phases in the disaster management cycle (Fig. 3-3-1-2)

-Participation of various satellites: earth observation satellites, communication satellites, and navigation satellites

-Further collaboration for operation

-Further utilization of human networks through capacity building and outreach

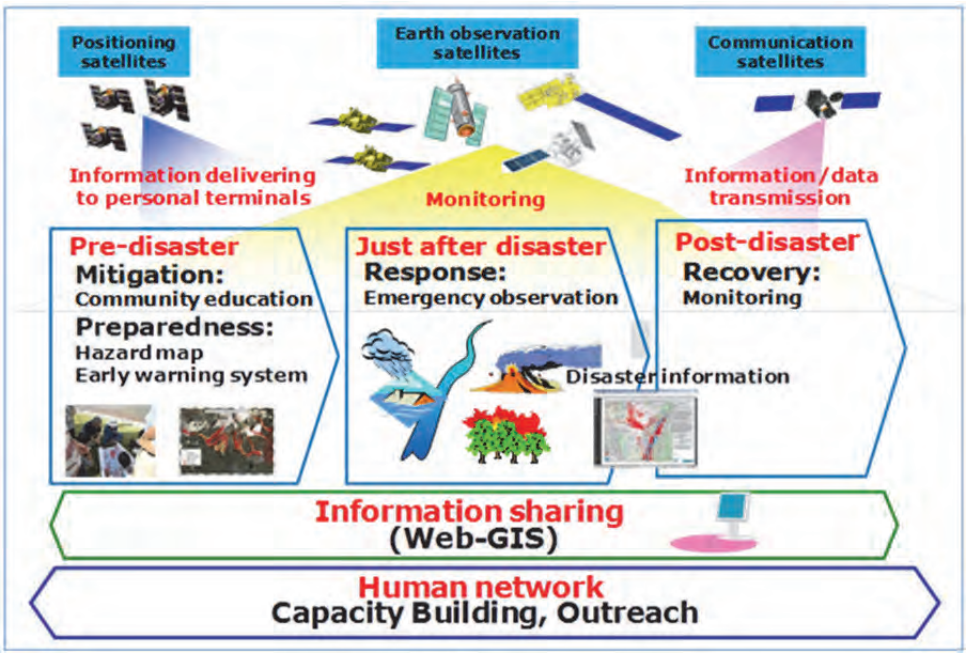

Fig.3-3-1-2. Concept of Sentinel Asia Step3

(3) Emergency Observation Activities for this year

Despite the year to year changes in the number of requests, the ratio of activated numbers of times 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 2015, twenty-five emergency observations were requested, twenty-four of which were undertaken, after the operation of ALOS-2, satellite replacing ALOS had started from November, 2014.

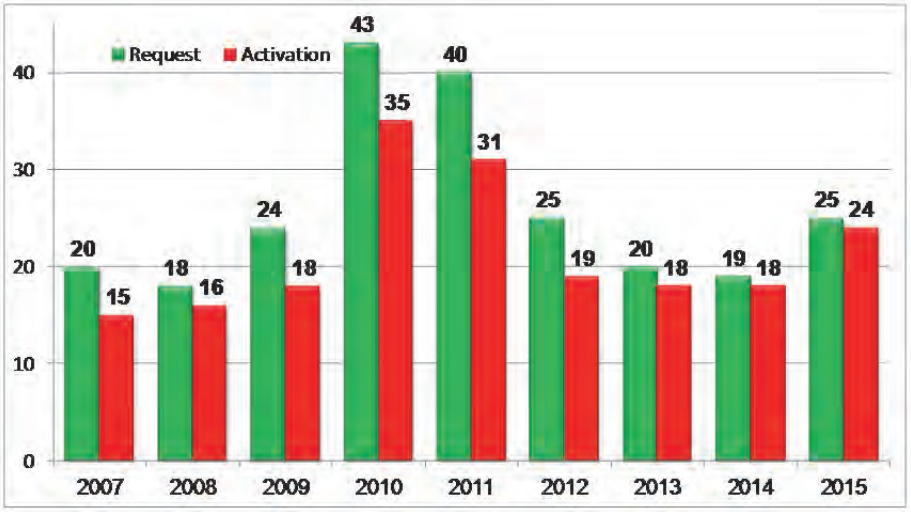

Fig.3-3-1-3. Changes in the number of emergency observation 2007-2015

Looking at the breakdown by the types of disaster in 2015, the ratio of flood occupies for more than one third of the total (Fig. 3-3-1-4).

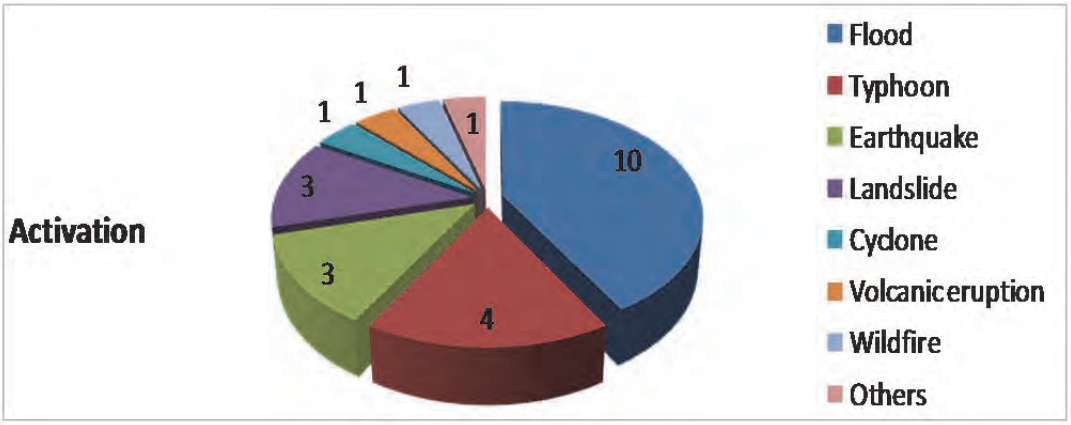

Fig. 3-3-1-4. Breakdown by type of disaster (2014)

Regarding the number of activation after June, 2015, many countries in Southeast Asia and Southern Asia saw floods including Nepal, Bhutan, Myanmar, Pakistan, Vietnam, Bangladesh, Japan, Sri Lanka, India. Concerning typhoon disaster, emergency observation was carried out twice in Philippines and Taiwan, individually. Those for earthquakes were carried out in Nepal for an earthquake of 7.8 magnitude including the later aftershock on April 25, 2015 and in Pakistan for another, of 7.5-magnitude in the northern part of the country on October 25, 2015. Pakistan was the seismic center, while damages occurred in the neighboring country, Afghanistan.

During 2007-2015, flood occupies half or more, followed by earthquake, and landslide. In regard to the status of implementation of emergency observation by country in, top five countries (Indonesia, Philippines, Japan, India, and Nepal) occupied more than half of the total. Indonesia saw many kinds of disasters with significant damage, except typhoon, including volcanic eruptions, earthquakes, tsunamis, landslides, and forest fires. Philippines was hit by typhoon almost every year bringing about damages. Vietnam is characterized by the damages caused by floods and typhoons.

In 2015 due to the earthquake of 7.8-magnitude happened on April 25, Nepal was the top in the number of activations, four times including those for the later aftershocks, and landslides. The activation was twice in Indonesia, Vietnam, Myanmar, Japan, Pakistan, Taiwan and Philippines.

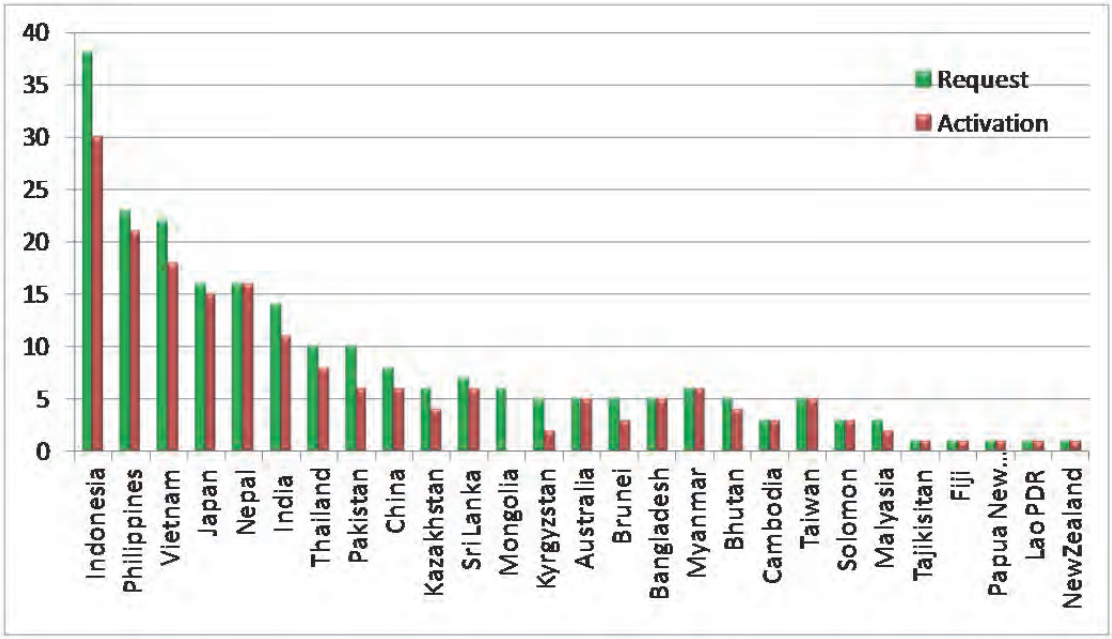

Fig.3-3-1-5. Breakdown by the country of the request and the activation of the Emergency observation

3-3-2. Utilization and Action of Disaster Management about Sentinel Asia STEP3

(1) Objective of the report

Sentinel Asia STEP3 began in 2013, based on expanding human network and joint operation coordinated by Joint Project Team of SA, employing a wide variety of satellites including earth observation satellites, communication satellites and navigation satellites. It has covered all phases in disaster management cycle; this means not just the emergency response but pre-disaster prevention and preparedness phases as well as post-disaster recovery and reconstruction phases.

ADRC, supported by JAXA, carried out the following missions to lead SA STEP3 evolution, supporting of establishment and management of steering committee and working groups, emphasizing utilization of satellite images for the disaster management organizations participating in SA.

(2) Contents

The following activities have been carried out.

1. Supporting establishment of a steering committee for SA
   - 1.1 Supporting systematization for SC
   - 1.2 Supporting administration of SC
   - 1.3 Supporting the document preparation for relevant meetings
2. Supporting promotion of SA step3
   - 2.1 Coordination for strengthening cooperation with disaster management organizations
   - 2.2 Organisation of WGs by disaster types
3. Report in the meetings
4. Drafting the outcome report

(3) Progress

ADRC has supported steering committee and WG meetings for SA, which were mainly held by JAXA, and made the minutes of other related meetings. Regarding the support for promotion of SA STEP3, ADRC has been undertaken questionnaire surveys and hearing survey on the following items, targeting at disaster management organizations as follows.

- ✓ Organizational chart of disaster management organizations
- ✓ Disaster management organisations using satellite images(Name of Organization, Contact Person, Position, E-mail address, Phone number)
- ✓ Working Groups of interest
- ✓ Contact address when a disaster happens and whether they have local offices or not

The results of the research was compiled in a table by country.

3-3-3. Promotion for 10 years Anniversary of Sentinel Asia

(1) Objective

A decade passed by March 2016 after the operation of Sentinel Asia, as an international cooperation project had started in 2007 to provide satellite image data in the event of a disaster in the Asia-Pacific region. By the end of March, 2016, in total 241 requests of operation were made by the participating disaster management/satellite agencies.

In the Sendai framework adopted as a post-2015 framework on Disaster Risk Reduction (DRR) at the third UN World Conference on Disaster Risk Reduction (WCDRR) in Sendai, Japan, it is expected that promotion of space technology in DRR filed will be strengthened which requires further activities of Sentinel Asia. ADRC proactively participated in a series of international conferences related to space technology including the steering committee established in 2015.

(2) Participation for International Conferences

① UN-SPIDER Regional Support Offices (RSO) Meeting

In accordance with the cooperation agreement between the United Nations Office for Outer Space Affairs (UNOOSA) and ADRC signed on June 2009 on the establishment of ADRC UN-SPIDER Regional Support Office, UN-SPIDER Regional Support Office (RSO) has been established in ADRC and has been operated by ADRC staff members as coordinators of ADRC UN-SPIDER RSO In the world,so far, 20 regional support offices have been established. .As a part of the activities of RSO, ADRC participated in the 6th UN Platform for Space-based Information for Disaster Management and Emergency Response UN-SPIDER RSO Meeting, which was held in conjunction with the 52nd Session of the Scientific and Technical Subcommittee on Peaceful Uses of Outer Space (UN-COPUOS). the meeting held on 5 and 6 February, was attended by more than 30 RSOs from around the world. ADRC made a presentation on the recent trends of emergency observation requests in Sentinel Asia.

② The First Steering Committee (FSC) Meeting of the Sentinel Asia Step 3

As the secretariat of Sentinel Asia, ADRC participated in a meeting jointly organized by the Japan Aerospace Exploration Agency (JAXA), the Asian Institute of Technology (AIT), and ADRC. It was held from 13 to 15 October 2015 in Bangkok, Thailand and was attended by representative of satellite agencies, academic institutions, and disaster management organizations across Asia. The meeting primarily covered the following topics.

ADRC gave three presentations at this conference on the following topics: (1) EOR and Emergency Observation Procedures Using Sentinel Asia, (2) The Role of ADRC in Sentinel Asia, and (3) Sentinel Asia Emergency Observation Trends.

③ Sentinel Asia Initiative Tsunami Working Session and the 22nd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-22)

ADRC participated in this meeting which was co-organized by the Indonesian Ministry of Research, Technology and Higher Education (RISTEK-DIKTI), the Indonesian National Institute of Aeronautics Space (LAPAN), the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT), and JAXA. It was held from November 30 to December 4 2015 in Bali, Indonesia and was attended by 453 participants and 10 international organizations, mainly Asia-Pacific regional space agencies, from 30 countries and regions.

ADRC gave two presentations at this conference: (1) The Role of ADRC in Sentinel Asia at the Space Applications Working Group on Day 2 and (2) an introduction to ADRC and cooperation with disaster management organizations in the Special Session on Synergies in Space on Day 4.

3-3-4. Application of Space-Based Technology and Information and Communication Technology to Strengthen Disaster Resilience

(1) Background and Objectives

Asian Development Bank (ADB) has initiated a regional capacity development technical assistance on Applying SBT and ICT to Strengthen Disaster Resilience. The project aims to assist Armenia, Bangladesh, Fiji and the Philippines to improve local capacity to collect and share reliable and timely disaster-related data using SBT and ICT at a local government and community level in a more cost-effective manner to strengthen their disaster resilience and support timely post-disaster response, recovery and reconstruction efforts.

(2) Overall methodology

Local information is shared by digitizing the community-based hazard map that has been created in paper form. In addition, micro-level disaster information in the event of a disaster is also rapidly shared by digitization. Furthermore, by overlaying the satellite information, disaster history in the area and overall disaster images, relevant information can be easily shared with. As a result, this application can be contribute to rapid and effective disaster response.

The overall approach and methodology outlined in the proposal fundamentally remains the same as shown in Figure 3-3-4-1 and includes: i) community-based OSM base map development; ii) Community Based Hazard/Risk and Evacuation Routes Mapping; iii) Crisis Mapping; iv) Utilization of Satellite-based Damage Assessment; v) Data Management Using GIS at Local Governments; and vi) Utilization of Data at the Community Level for Disaster Risk Reduction, Response And Recovery.

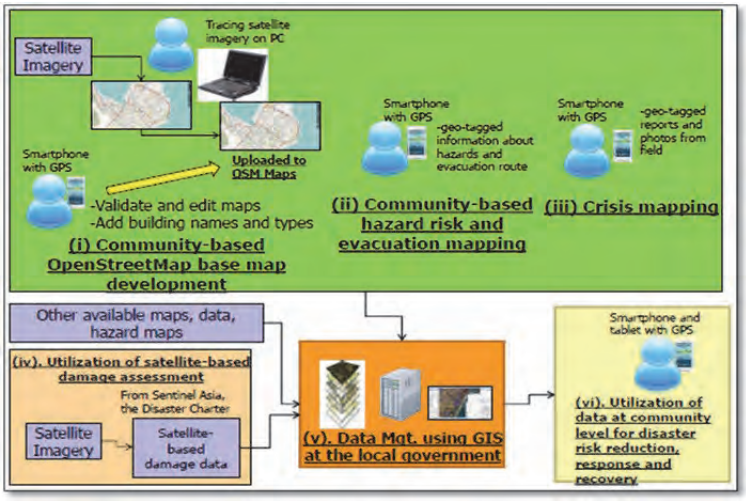

Fig.3-3-4-1. Overall methodology

(3) Duration

Project duration is 18 months from October 2015 to March 2017.

The regional kick-off meeting with the government officials of pilot project for the four countries was held at AIT, Thailand, in December 2015. Throughout 2016, data imputing and training by using the application under development will be carried out. By March 2017,the application will be completed, and made available for the relevant local authorities so that they will be able to get prepared to face future disasters.

(4) The ultimate goal upon completion of the project

ADRC would like to support wider application of this mechanism to the other regions in the pilot countries and also provide the outcome information of this project to other member countries. The spread of this application is expected to contribute to strengthening of DRR at the community level in each member country.

4. Human Resource Development

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

4-1-1. Background

ADRC has been welcoming Visiting Researchers (VR) from member countries since 1999. So far, , 93 officials from 26 member countries took part in this program.

Every visiting researcher has learns about Japan's advanced knowledge and technology on disaster risk reduction and international cooperation of Japan in his/her stay in ADRC.

The Visiting Researchers are expected not only to contribute to strengthening the capacity on Disaster Risk Reduction in their countries, but also to further promote cooperation between their countries and ADRC. After finishing the program, they are expected to contribute to developing and improving the capacity on DRR in their countries.

4-1-2. Objective

The objectives are as follows:

- To evaluate the capacity of ADRC member countries under the Sendai Framework for Disaster Risk Reduction by accumulating the latest data on the organizations, the national budget, the national plans, disaster event database, and the relevant laws, act, and regulations for disaster risk management.
- To examine the policies through collecting and analyzing disaster risk reduction measures of member countries.
- To improve the Visiting Researcher program based on their advice regarding sharing information and exchange opinions among the visiting researchers who stayed in the same period.

4-1-3. Activities of Visiting Researchers in FY2015

In fiscal year 2015, 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 2015 and the second from January to April 2016.

4-1-3-1. Armenia

Name : Mr. Harutyunyan Vigen

Job title at the time of visit: Head of Department of Data Acquisition Processing and Analysis,

Center of Seismic Hazard Assessment, Western Survey for Seismic Protection, Ministry of Emergency Situation.

Goal of the research: He had the intention to research on seismic monitoring, seismic

hazard assessment and disaster information acquisition processing analysis in Armenia. He studied earthquake monitoring system in Japan and visited Japan Meteorological Agency, Building Research Institute and took lectures related to his research topic. In his research report, he made a comparison on earthquake monitoring and information management system in Japan and Armenia.

4-1-3-2. Pakistan

Name : Mr. Mehmood TahirJob title at the time of visit: Assistant Meteorologist, National Seismic Monitoring Centre, Pakistan Meteorological Department

Goal of the research: He had the intention to study earthquake and tsunami resilience in Gwadar City, Pakistan. He took lectures by experts of municipalities, research institutes and visited affected sites to conduct the research.

4-1-3-3. Uzbekistan

Name : Mr. Fozilov Elyor Maxmudovich

Job Title at the time of visit : Leading Specialist, State Committee of Republic of Uzbekistan on Geology and Mineral Resources

Goal of the research: He had the intention to study system development of landslide monitoring and early warning and water systems. Through lectures and visits in relation to landslide monitoring system and affected areas and disaster education focusing on landslide, he made recommendation to landslide countermeasures in Uzbekistan.

4-1-3-4. India

Name : Mr. Andrew Lalhruaia

Job Title at the time of visit: Deputy Director (Plan), Urban Development & Poverty Alleviation Department, Government of Mizoram

Goal of the research: He had the intention to research about landslide disaster mitigation in Mizoram. He took lectures by relevant goverrnment organizations including Ministry of Land, Infrastructure, Transport and Tourism, local governments and academia as well as landslide monitoring sites and affected sites to examine the applicability to landslide countermeasures of the State of Mizoram.

4-1-3-5. Maldives

Name : Mr. Inayath Mohamed

Job Title at the time of visit: Director, Programs, National Disaster Management Center (NDMC)

Goal of the research: He had the intention to study about early warning and emergency response mechanism. He took lectures from Cabinet Office, Japan Meteorological Agency, local governments, police and fire departments. After taking lectures and visiting the organizations, he conducted comparative analysis on the systems of Maldives and Japan and

drew recommendation to Maldives.

4-1-3-6. Sri Lanka

Name : Mr. Liyanaarachchige Chathura

Job Title at the time of visit: Assistant Director (Preparedness), Disaster Management Center, Ministry of Disaster Management

Goal of the research: He studied on institutional disaster management plans in Japan. He conducted comparative survey on disaster management laws and other plans like contingency planning and BCPs at different levels and topics by visiting Cabinet Office, local governments, related organizations and experts at academia.

Scenes from presentation and visits of VRs, country presentation, visit to Cabinet Office, final presentation and visit to Sabo dam construction site (clockwise from left above)

4-2. Seminars and Training Course

4-2-1. JICA Training Course: "Comprehensive Disaster Management for Central Asia and Caucasus"

ADRC conducted the Knowledge Co-Creation Programs for disaster management officials from Central Asia and the Caucasus from 23 June to 31 July 2015. This event was conducted with cooperation from the Japan International Cooperation Agency (JICA) Kansai International Center. Central Asia and the Caucasus frequently experience disasters such as earthquakes and landslides, as well as flash floods and other floods caused by melting snow in the mountains every spring. In addition, some of these natural disasters extend across several countries. Promoting regional cooperation on disaster risk reduction in these regions is therefore a significant challenge.

This course aims to convey basic knowledge and experiences related to natural disaster management in the trainees' countries. Trainees were asked to identify a major problem in their own countries and to formulate an action plan for addressing it. The course was conducted in Russian for 16 central and local government officials representing seven countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan in Central Asia, and Armenia and Azerbaijan in the Caucasus. Participants attended lectures and visited central and local government agencies, research institutes, private companies, a meteorological organization, and NGOs in order to comprehensively enhance their understanding of disaster management. They also participated in community activities, such as a disaster prevention drill conducted by a junior team of BOKOMI (community-based disaster management organizations organized by the Kobe City Fire Bureau), and went to Niigata, which experienced the Niigata-Chuetsu Earthquake in 2004, to learn about earthquake recovery, as well as landslide and erosion control countermeasures being implemented in the area. In addition, they also visited Hiroshima city for the first time during the training course. They had an opportunity to interact with people affected by a landslide that occurred in 2014 and also learned about the importance of passing down lessons learned from major disasters to succeeding generations.

Visit to an affected area of Niigata Chuetsu

It is hoped that the participants will make good use of the knowledge, tools, and methods they learned during this training course to implement various projects and help strengthen the disaster management systems in their home countries. ADRC would like to express its sincerest gratitude to all the organizations that contributed to the success of this course.

4-2-2. JICA Training Course: "Comprehensive Disaster Risk Management Course"

From 12 January to 26 February 2016, ADRC, in collaboration with JICA, Kansai International Center conducted the JICA Comprehensive Disaster Risk Management Course for eight countries, namely Afghanistan, Armenia, Bangladesh, Bhutan, Myanmar, Pakistan, Philippines, and Timor-Leste.

Twelve government officials in charge of disaster risk reduction. This course aimed to contribute to formulation and further development of disaster management plans in participating countries by enhancing their understanding of Japanese disaster management systems and countermeasures implemented by central/local government and multi-stakeholders.

During the training, participants understood the structure of Japanese disaster management system by comparison with their own countries and considered the roll have to be taken by each organization.

They attended a series of lectures in regard to disaster preparedness, emergency response, rehabilitation and mitigation based on the disaster management cycle, and also visited disaster stricken areas and observed the recovery processes from the multiple calamities such as earthquake, tsunami and volcanic eruption etc.

Furthermore, they learned from the experiences of the practical methodologies for disaster risk reduction, for instance hazard mapping, evacuation drills and disaster education tools.

Participants were deeply impressed with the efforts for disaster risk reduction in Japan and keen to exchange their knowledge and experiences among the groups and lecturers throughout the course. It is hoped that they will make good use of what they learned during this training course to strengthen the disaster management systems in their home countries.

Making a community based hazard map

4-2-3. JICA Training Course: “Raising Awareness of Disaster Reduction”

ADRC conducted a training program for disaster management personnel of administrative and research institute in the developing country for purpose of raising awareness of disaster reduction in their country as the following.

The program was designed to develop an action plan and to implement it for raising awareness of disaster reduction among the citizens of those countries.

The ultimate goal is to ensure that the general public will be able to acquire the knowledge needed for disaster reduction, conduct preparedness and emergency response activities, and minimize damage during a disaster.

Participants attended lectures and visited central and municipal government agencies, disaster management bases, educational institutes, a meteorological organization, a broadcasting company, and NPOs in order to enhance their understanding of Japan's disaster management system and techniques.

The participants were very interested in the disaster risk reduction efforts taken in Japan and were eager to participate in every lecture and site visit. At the end of the program, they developed an action plan for their own country and gave a presentation on their conclusions.

(1) Raising Awareness of Disaster Reduction (A)

This program was conducted for 8 disaster management officials from Vietnam by Vietnamese language from 23 June to 24 July 2015, following the last year.

During a study tour to Kyoto, they learned a great deal about Japan’s disaster reduction culture. They learned about traditional wooden houses called "Kyomachiya" and the cultural significance, and also learned a great deal about disaster reduction in very densely populated urban areas. In Tokushima, they mastered basic knowledge and skills that can be used to combat flooding. These are of great practical use to the people of Vietnam, where floods frequently cause major natural disasters. They practiced rope work, which is useful in reducing disasters, including techniques for making lifelines. They also learned a method of sandbag stacking that can be used to temporarily stop a levee leak through the creation of an emergency reservoir.

Rope Work Lecture

(2) Raising Awareness of Disaster Reduction (B)

This program was conducted for 19 disaster reduction personnel from the following 16 countries, Bangladesh, Sri Lanka, the Philippines, Myanmar, Timor, St. Lucia, Chile, Guyana, Suriname, Senegal, Armenia, India, Fiji, Vanuatu, Saint Vincent and the Grenadines, and

Colombia by English from 11 January to 13 February 2016.

Particularly, they joined to the practice of the Town-Watching and Hazard Map-Making in Enoshima during Kamakura Study Tour. This program was one of the centerpieces in this training course. Further, it was a very interesting participatory program that they discussed mutually and proceeded with making hazard map together. All participants were appreciated this program since it was practical and useful for raising awareness of disaster reduction of local residents in each country.

4-3. Implementation of Short-term Training

ADRC has been conducting a short-term training for the disaster risk reduction. targeting mainly government officials and students overseas. The training courses are focused on the current state of disaster in Asia, the activities of ADRC and the disaster prevention measures in Japan and so on. The training activity provides 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.

In recent year, participants are interested in town-watching program. The following table is the list of visitors from abroad who attended lectures in FY 2015.

Table 4-3-1 Short-term Training in FY 2015

	Date	Affiliation	Number	Country
1	15 April 2015	Building Research Institute	5	Ecuador, Nicaragua, Indonesia, Philippine
2	25 June 2015	JICA Training	12	El Salvador, Fiji, Haiti, Myanmar, Philippine, Serbia, Tajikistan, Timor
3	1 July 2015	JICA Training	12	El Salvador, Fiji, Haiti, Myanmar, Philippine, Serbia, Tajikistan, Timor
4	23 October 2015	Delegation from Malaysian University	3	Malaysia
5	26 November 2015	JICA Training	10	Kiribati, Brazil, Sudan, Tanzania, Swaziland, Mozambique
6	11 December 2015	JICA Training	10	Kiribati, Brazil, Sudan, Tanzania, Swaziland,Mozambique
	Total		52	

4-4. Promotion of Disaster Education in Schools in ASEAN Countries

ADRC and Ministry of Education (MOE) Malaysia hold the Emergency Preparedness Program in Ranau, Sabah, Malaysia from 28 to 30 March 2016 as a Training of Teachers (TOT) and a pilot lesson for "Promotion of Disaster Education in Schools" project. This project was one of the Japan-ASEAN Integration Fund Projects, aiming to promote disaster education in ASEAN countries through training of school teachers.

In the past, Malaysia has experienced earthquakes in the state of Sabah. On 5th June 2015, a 6.2-magnitude earthquake which lasted 30 seconds struck Ranau. The earthquake was the strongest in Malaysia and resulted in eighteen deaths on Mt. Kinabalu, with most of the deaths being school students from Singapore.

MOE and ADRC aimed to acculturate DRR among teachers, students as well as the local community, as school education is one of the effective approaches toward a sustainable disaster risk reduction. The program was implemented to promote disaster education in schools by providing consultation about teaching materials and teaching methods tailored to local contexts. The knowledge and skills gained from the training would assist teachers and students to regularly and systematically facilitate disaster education at the school level or their local community.

More than 100 teachers and 20 students of Primary School and Lower Secondary School in Ranau, Sabah attended three-day workshop. This workshop consisted of a lot of lectures regarding earthquake disaster reduction. For instance, Mr. Matsuzaki, officer of Kobe city, Japan, gave a lecture on "Experience based on the Hanshin-Awaji Earthquake" with introducing various education materials. After the lectures, teachers and students made a discussion how to consider possible disaster risk reduction activity in their own school. Also Mercy Malaysia, NGO for DRR in Malaysia, provided a lecture regarding emergency response activity in case of earthquake.

There were lots of feedback from the teachers that they would like to have more knowledge on natural disasters and opportunities to learn about disaster risk reduction.

Training of Teachers (Malaysia)

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

5-1. Urban Search and Rescue Training in Singapore

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

The Singaporean government held an annual training course for search and rescue officers, and over the past nine years, the course included trainees from outside Singapore. Training was provided the search-and-rescue expertise required in urban disaster situations. The training facility complex of the Civil Defence 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 invited fire fighters and rescuers from member countries to participate in this training course since FY 2001.

Following table is the list of participants in past. The number of participants reached 53 in total.

Table 5-3-1 List of Participants

Fiscal Year	Countries of past participants	Number of participants
2001	Philippines, Myanmar, and Korea	3
2002	Cambodia, Laos, Mongolia, Philippines, and Vietnam	5
2003	Cambodia, Malaysia(2), Myanmar, Sri Lanka, Thailand(2), and 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, and 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
Total		53

5-2. Capacity Building in Member Countries

5-2-1 ADRC Cooperative Project and Peer Review for Promoting the Implementation of the Sendai Framework for Disaster Risk Reduction (SFDRR)

ADRC conducts DRR Policy Peer Reviews to help develop the DRR capacity of ADRC member countries by promoting information sharing and strengthening of relationships among member countries. The project adopted this year, the seventh year since the program was launched, is a cooperative project entitled "Nationwide Promotion of the Sendai Framework for Disaster Risk Reduction (SFDRR)" undertaken by the government of Philippines in collaboration with ADRC. The reviewer team visited Manila on 20-22 March, examined the progress of the cooperative project, and provided relevant advice. The activities covered by the review in the Philippines included the formulation of educational materials and the implementation of activities to raise disaster awareness. The purpose of the cooperative project under review was to effectively raise awareness of the SFDRR among those responsible for disaster reduction in the national and subnational governments and in the private sector.

Fig. 5-2-1-2: The presentation of the reviewers

Fig. 5-2-2: The explanation of aim on design of Information Education Communication material

ADRC invited two peer reviewers to visit the Philippines: (1) Dr. Satoru Nishikawa, Executive Director of Research at the Japan Center for Area Development Research and former Executive Director of ADRC, who had been deeply involved in the development of the SFDRR, and (2) Dr. Raditya DJati, Deputy Director for Disaster Prevention at the National Disaster Management Authority (BNPB) in Indonesia. ADRC Researcher Mr. Kazuhito Ueda also joined the mission from ADRC.

The reviewer team, together with their counterpart organization, the Office of Civil Defense in the Philippines, organized a workshop on 21 March in Manila for officials from relevant government organizations. Participants discussed Japan's disaster experience and lessons learned in the formulation of the SFDRR, key elements for effective education and outreach, the disaster

situation in Indonesia, and challenges in promoting the SFDRR there. The Office of Civil Defense explained their plans to design and produce public awareness raising materials such as brochures and posters, and gave a presentation on the country report used as the background material. The reviewers then gave their feedback and comments on these items. This project aims to provide a mutual learning process among ADRC member countries, enabling reviewer and reviewee countries alike to learn from one another throughout the peer review process. The reviewer team submitted a report to the reviewee country and the Philippines then provided a final report.

5-2-2. Technical Cooperation Project in Indonesia

5-2-2-1. Background of the Project

Indonesia is a disaster prone country which is frequently affected by various types of natural disasters, such as earthquakes, volcanic eruptions, and Tsunamis. Examples of such disasters and the damage in recent years include: the Indian Ocean earthquake and tsunami in December 2004 and the Java earthquake in May 2006. These disasters have raised awareness of disaster management. The government of Indonesia, upon these occasions, enacted Law No. 24 on Disaster Management in 2007, and strengthened the disaster management systems of the country through establishing BNPB (National Agency for Disaster Management).

However, BNPB, which has only a short history, does not have an adequate organization structure, budget, skills, knowhow or staff, and it is difficult for BNPB to give directions or sufficiently support the local governments in establishing BPBD (the Regional Agency for Disaster Management) or in formulating the Regional Disaster Management Plans. In addition, although each local government established its own BPBD primarily responsible for disaster risk reduction as a permanent organizaion, it seems difficult for many of local BPBDs to perform their duty effectively due to lack of knowledge and experience on disaster management.

Against this background, the JICA Technical Cooperation Project “the Project for Enhancement of the Disaster Management Capacity of BNPB and BPBD” was formulated with a goal of enhancing disaster management capacity of BNPB, provincial BPBDs in North Sulawesi and West Nusa Tenggara provinces, and regency/municipality BPBDs in both provinces for reducing damage from disasters in Indonesia.

ADRC with the Oriental Consultants Global Co., Ltd, a partner agency was commissioned the Project and started the project activities based on the proposal from November 2011.

5-2-2-2. Outline of the Project

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

【Project Period】	November 2011 – December 2015 (4 years)
【Project Purpose】	Enhancement of the disaster management capacities of BNPB, the provincial BPBDs, and the regency/municipality BPBDs in the pilot area
【Project Target Areas】	1. Jakarta (BNPB), 2. provincial BPBD of North Sulawesi province and regency/municipality BPBDs within it, 3. provincial BPBD of West Nusa Tenggara province and those of its regencies/municipalities.
【Expected Outputs】	[Output 1]: Improvement of the capacity for the regency/municipality BPBDs to accumulate disaster data/information that is fundamental for disaster risk management and improvement of the accuracy of such data/information. [Output 2]: Creation of Hazard and Risk Maps at the regency/municipality level in the pilot area. [Output 3]: Formulation of Regional Disaster Management Plans for regency/municipalities in the pilot area. [Output 4]: Disaster Management Drills are to be conducted in the pilot provinces as well as in regencies/municipalities in the pilot provinces

Two experts of ADRC joined the activities on “Disaster Information System” for Output 1 and “Community Based Disaster Risk Management” for Output 4. In the fiscal year 2014, the activities for the first pilot province, North Sulawesi province, were finalized in April 2014. (The activities of the Output 1 were only for the first pilot province and completed.) Those for the second pilot province (for Output 4) , the CBDRM activities for the Tsunami risk reduction were conducted, based on which the draft village disaster management plan (including of community DRR map and early warning system) was formulated by March 2015.

In September 2015, the final reporting sessions of the project activities were held in the second pilot province and Jakarta. The Indonesian counterparts of the project expressed their intention to continue the disaster risk management (DRM) activities using the outputs and what they learned through the project. Further the staff members of BNPB mentioned their willingness to disseminate the project outputs in the other provinces to improve their DRM activities.

Community Evacuation Drill under the Output 4 activities in West Nusa Tenggara

Final Reporting Session in West Nusa Tenggara

(Source: JICA Project for Enhancement of the Disaster Management Capacity of BNPB and BPBD)

5-2-3. Technical Cooperation Project in Nepal

5-2-3-1. Background of the Project

Nepal, located in the area where Indian plate and Eurasian plate hit, is one of the frequent earthquake occurrence areas in the world. Kathmandu Valley, which includes the capital city of Nepal, has experienced several disastrous earthquakes, including the Bihar-Nepal earthquake of magnitude 8.4 which occurred in 1934 with approximately 20% of all buildings in Kathmandu Valley were destroyed and 9,040 people were killed. Comparing with the high risk of a future earthquake in Kathmandu Valley, countermeasures such as retrofitting of buildings for seismic resistance, land use control and observance of the National Building Code have not been promoted enough. Further, the rapid increase of population of Kathmandu Valley would make more people facing the risk with extension work on current buildings and non-engineered buildings that constructed without the participation of knowledge and skilled architects and engineers. The Government of Nepal has been tackling the issue with the formulation of laws and strategies but lack of basic risk information for the valley.

The project “The study on Earthquake Disaster Mitigation”, conducted by JICA in 2002, estimated the damage based on the Bihar-Nepal earthquake scenario that 53,000 buildings will be destroyed, 18,000 people will be killed. Since then, population has been increased by a factor of 1.5 and the number of buildings increased up to 1.7 times. Therefore the potential damage must be much more serious if the same scenario is considered now and might be even worse in the future.

With the background, it becomes a necessary and urgent issue to update the risk assessment for the future development plans and 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 Indian Plate and Eurasian Plate with its epicenter approximately 76km 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 follow the changed situation and respond to the rehabilitation and recovery needs.

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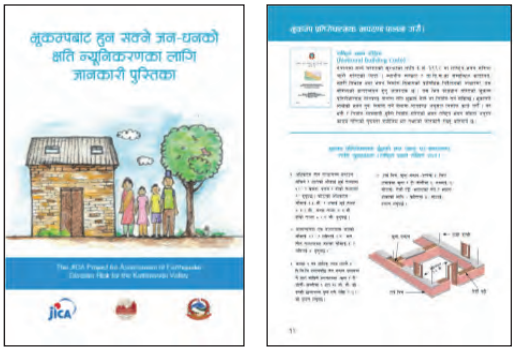
5-2-3-2. Outline of the Project

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
【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.

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.

In the fiscal year 2015, as one of the activities on “Standard Operation Procedure Planning”, a chronological survey was conducted for the purpose to review the emergency response activities of the disaster management organizations at national level and in the pilot municipalities in the case of the Gorkha Earthquake. Also, as the activities on the “Community Based Disaster Risk Management”, urgent resilient and safe Kathmandu campaign was organized. The campaign activities included development of the brochure, implementation of the community workshops and radio broadcasting for enhancing earthquake risk and risk reduction knowledge and awareness.



Brochure on Earthquake Risk and Risk Reduction

Community Workshop on Earthquake Risks

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

5-3. Project on International Dissemination of Information on Japan's Efforts for Disaster Risk Reduction

5-3-1. Background of the Survey

Disaster risk reduction (DRR) activities relate to a broad range of policies and involve various ministries, agencies and organizations, which require effective information sharing, coordination and cooperation among DRR related organizations including national and local government. In Japan, the government issues a whitepaper on disaster management every year. The whitepaper compiles the information of the efforts by the relevant government organizations for DRR in the year, which enable the relevant organizations to share their DRR activities with each other and to provide information to the public and relevant parties.

Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) adopted in 2015 underlines the importance of strengthening disaster risk governance, and stresses the need for building awareness and knowledge of disaster risk through sharing disaster risk information and data. Also, the SFDRR underscores the importance of the periodical assessment and public reporting of the progress of local and national plans for disaster risk reduction.

In this context, the Cabinet Office, Japan initiated a project to widely disseminate information of Japan's knowledge and experiences on the efforts for DRR which can serve as a useful reference for strengthening DRR efforts in other countries, especially in developing countries. The project focused in particular on disseminating information of the Japan's efforts for strengthening disaster risk governance through the process of the development of whitepaper on disaster management. ADRC undertook the project.

5-3-2. Outlines of the Project

The outlines of the project were as described below.

(1) Development of a Japanese-English Terminology on DRR

A Japanese-English terminology for the words and terms frequently used in the "2015 White Paper on Disaster Management in Japan" was developed.

Fig. 5-3-1 Japanese-English Terminology on DRR (*Source: Cabinet Office, Japan*)

(2) Translation of "2015 White Paper on Disater Management in Japan"

A summary version and a full version of the "2015 White Paper on Disaster Management in Japan" were translated into English using the terminology developed in the above activity (1) and English reports and brochures of the relevant DRR organizations. The necessary numbers of the translated white paper were printed for distributing in the designated workshops and events, and the versions saved as PDF were prepared for offering download to the DRR related parties around the world. The versions can be downloaded at the following website of the Cabinet Office, Japan.

Summary Version: http://www.bousai.go.jp/kaigirep/hakusho/pdf/WPDM2015_Summary.pdf

Full Version: http://www.bousai.go.jp/kaigirep/hakusho/pdf/WP2015_DM_Full_Version.pdf

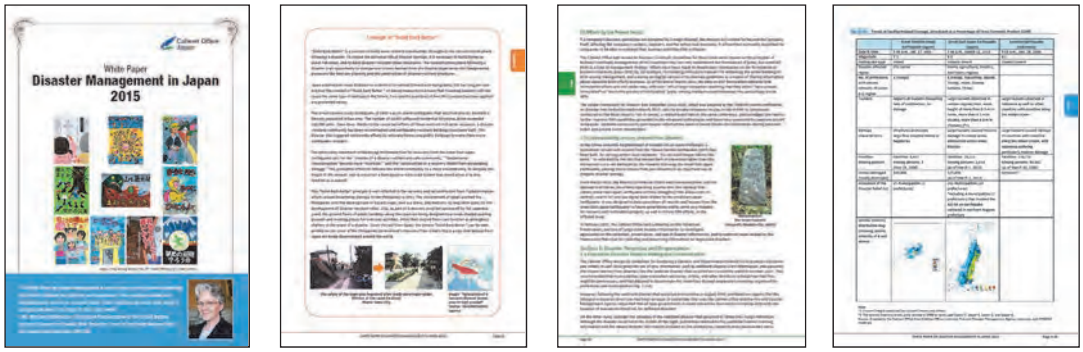


Fig. 5-3-2 English Version of the 2015 White Paper on Disaster Management in Japan
(Source: Cabinet Office, Japan)

(3) Activities for Widely Disseminating Information of Japan's Efforts on DRR

Using the translated "2015 White Paper on Disaster Management in Japan," activities for widely disseminating information of Japan's efforts on DRR were conducted as follows.

1) Introduction of the White Paper on Disaster Management in the ISDR (International Strategy for Disaster Reduction) Asia Partnership (IAP) Meeting

In the ISDR Asia Partnership Meeting held in Delhi, India on 17-19 November 2015, Mr. Yohei Matsumoto, Parliamentary Vice-Minister of Cabinet Office, Japan introduced that the government of Japan prepared the first English translation of the White Paper on Disaster Management in Japan in the fiscal year. Mr. Kaoru Saito, Director International Cooperation Division, Disaster Management Bureau, Cabinet Office, Japan provided a brief introduction to the translation project of the white paper on disaster management in Japan. Further, the English version of the white paper was distributed to each participant during the period of meeting which was attended by many DRR stakeholders in Asia.

Fig. 5-3-3 Introduction of White Paper on Disaster Management in Japan in the IAP Meeting (Left: Mr. Matsumoto, Parliamentary Vice-Minister of Cabinet Office, Japan/ Right: Mr. Kaoru Saito, Director International Cooperation Division, Disaster Management Bureau, Cabinet Office, Japan)

2) Special Session on the White Paper in the Asian Conference on Disaster Reduction (ACDR) 2016

In the Asian Conference on Disaster Reduction (ACDR) 2016 which was jointly hosted by the governments of Thailand and Japan, and UNISDR on 25-26 February 2016 in Phuket, Thailand, a special session on the white paper was organized on 26 February 2016, the second day of the ACDR.

In the special session titled “DRR Policy Reporting for Better Governance,” the participants had an exchange of their knowledge, experiences, and views on DRR policy reporting and information sharing of the DRR activities in their own countries. Also, the summary version of the “2015 White Paper on Disaster Management in Japan” was distributed to each participant.

Fig.5-3-4 Special Session on the White Paper in the ACDR2016

In the session, at first, Mr. Kaoru Saito, Director of Cabinet Office, Japan introduced the Japan's White Paper on Disaster Management which has been developed every year since 1963. Then, it was followed by the presentations of the efforts for DRR information reporting and sharing in the Republic of Korea, Taiwan, and Thailand. Mr. Arun Pinta from International Cooperation Section of Department of Disaster Prevention and Mitigation (DDPM), Thailand explained the Thailand's white paper developed through a JICA project in his presentation.

After these presentations, a couple of questions or comments were heard from the floor. Mr. Julio Serje from UNISDR picked up the initiatives on the global report on disaster risk reduction developed by UNISDR and pointed out that such a paper firstly focus on introducing various DRR efforts taken place in the world among various stakeholders. However, he added another function of the paper, "self-reflection", that is to review what we have done so far and identify gaps of these efforts, which he believes the most important function such papers have.

At the end of the session, Mr. Saito of Cabinet Office of Japan mentioned that there are challenges identified in the session to strengthen disaster risk governance for the promotion of SFDRR, and also strong needs to further discuss and seek better methodologies for the promotion of DRR policy reporting systems in Asia.

5-4 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.

(1) Multilateral Cooperation on Disaster Reduction and Recovery through participation in the Indian Ocean Rim Association (IORA)-led International Conference in Tanzania

An International Conference entitled “IORA Sustainable Development Programme Workshop: Exploring Preemptive Disaster Risk Management Measures to Ensure Community Resilience”, organized and hosted by the Indian Ocean Rim Association (IORA) and co-hosted by the Prime Minister's Office of the Government of the United Republic of Tanzania, was held in Dar Es Salaam, Tanzania on 20-21 April 2015.

Upon invitation and request, ADRC sent one Japanese representative from International Recovery Platform (IRP) to the conference, which attracted over 50 participants including government officials from the Indian Ocean Rim countries. As Japan is one of the IORA's Dialogue Partners, delegations from the Embassy of Japan in Tanzania, JICA Office in Tanzania, and IRP based in Hyogo, Japan were also invited.

Considered as the first international gathering of over 20 countries associated with IORA since the Sendai conference in March 2015, the IORA Conference provided participants with vital opportunity to exchanging their views on “How Can We Explore Preemptive Disaster Risk Management Measures to ensuring Community Resilience?”

During the opening session titled “Disaster Risk Management and Community Resilience: Sharing Japan's Experience”, Mr. Shingo Kochi, ADRC Senior Expert as well as IRP Senior Recovery Expert, valued the high ability of Governments in the Indian Ocean Rim Association to promote recovery and reconstruction efforts since the 2004 Sumatra Earthquake and Indian Ocean Tsunami disasters. Mr. Kochi also noted that ADRC and IRP have long been promoting and implementing multilateral cooperation on disaster reduction and recovery by sharing Japan's technologies, experiences, and lessons as well as knowledge management. Among those are “IRP Guidance Notes for Recovery”, and “ADRC's Visiting Researcher (VR) Program”.

Fig. 5-4-1 Participants in Conference

"Although the 2004 Indian Ocean Tsunami waves reached Tanzania and other east coast of African countries 18 hours after the occurrence of the earthquake, still, some 100 causalities were accounted in Somalia. This triggered the following questions: What can we learn? How can we build back better? How can we incorporate disaster management into sustainable development?" To shed light, Mr. Kochi emphasized the importance of everyday preparedness by citizens and private sector, in addition to the government efforts when a massive disaster strikes. In this connection, the upcoming big event in late May 2015: "IRP Workshop on Disaster Recovery Planning" to be held in Dhaka, People's Republic of Bangladesh, one of IORA member countries, will showcase another evidence of Bangladesh's continuous efforts on disaster reduction, disaster preparedness, and recovery. This event illustrates how ADRC/IRP will seek possibilities of providing further technical assistance for the IORA member countries' preparation efforts toward future disasters.

(2) Workshop on Disaster Recovery Planning in Dhaka

The need to mainstream and articulate "build back better in recovery, rehabilitation, and reconstruction" was expressed during the Stakeholders' Consultation, 9-10 December 2014 in Dhaka. In response to this, the Ministry of Disaster Management and Relief (MoDMR), the Institute of Strategic Recovery Studies for Disaster Resilience and Research (ISRSDRR), the United Nations Development Programme in Bangladesh (UNDP), and the International Recovery Platform / Asian Disaster Reduction Center (IRP / ADRC) had jointly organized a three-day workshop on disaster recovery planning, 25-27 May 2015 at CIRDAP Auditorium, Dhaka, Bangladesh.

The event gathered over 50 high level and technical delegations from various ministries of the government, universities, development partner organizations, NGOs, and private sector to achieve to discuss recovery agenda in the context of the Sendai Framework for Disaster Risk Reduction. The event was inaugurated by Mr. Mofazzal Hossain Chowdhury Maya Bir Bikram, Minister for Disaster Management and Relief (MoDMR) of the People's Republic of

Bangladesh, who expressed commitment to pursue effective disaster management programs by incorporating 'build back better'. At the closing, Mr. Hasanul Haq Inu, Minister for Information, assured the participants that build back better efforts in recovery, rehabilitation, and reconstruction will be advocated in Bangladesh through the support of the ministry and media organizations.

Fig. 5-4-2-1 Participants of the Conference

One of the workshop outcomes was the identification of recovery issues, where the participants came up with initial strategies and actions to be integrated in the Pre-Disaster Recovery Plan of Bangladesh. On the bases of the workshop outcomes, the following next steps were identified. Firstly, a parliamentary meeting on 'build back better' will be organized on June 16, 2015 at the Bangladesh Parliament to discuss disaster risk reduction and recovery issues that require legal support and legislation. Secondly, the MoDMR through the support of UNDP Bangladesh will take forward the initial strategies and actions for Pre-Disaster Recovery Plan by organizing a writeshop on the first week of August 2015. Thirdly, through coordination between MoDMR and BBBF, the list of recovery agendas shall be advocated in existing policy and planning instruments in Bangladesh, including the Delta Plan that is facilitated by the Ministry of Planning. Fourthly, under the auspices of MoDMR, the BBBF shall take further steps to advocate in linking up key stakeholders in Bangladesh so that the Inter-Ministerial Disaster Coordinating Council (IMDCC) is convened and recovery agenda is integrated in the plans. Finally, new programs and projects to promote build back better shall be proposed by BBBF in collaboration with MoDMR and other relevant stakeholders. The initial proposals include building critical mass of local recovery experts and volunteers and partnership between local universities and international knowledge hubs to promote recovery agenda in school curricula as well as facilitate knowledge-sharing and exchange.

(3)East Asia Summit (EAS) & ASEAN Workshop in Hangzhou China

ADRC participated to East Asia Summit (EAS) workshop on 'Applications of Space Information Technology in Major Natural Disaster Monitoring and Assessment' and 2nd ASEAN workshop on 'Development of mechanisms for acquisition and utilization of space-based information during emergency response' held on 2-5 June 2015 in Hangzhou, China.

There were approximately 45 participants from NDRCC, Asian satellite and remote-sensing organizations, DRR organizations, and private space companies at EAS. The recent situations on disaster monitoring and assessment, and current challenges are reported. Participants understood to promote the implementation of SFDRR by further utilization of space technology.

In the ASEAN workshop, there were approximately 25 participants from ESCAP, Asian satellite and remote-sensing organizations, DRR organizations, and private space companies. Participants discussed for the guideline of emergency observation, disaster scale, and rapid mapping. Participants also committed for further utilization of the Sentinel Asia as follows;

- ✓ Due to less human resource, making time of EOR is slow
- ✓ Duration between EOR and satellite observation is long.
- ✓ Duration between EOR and receiving products is also long,
- ✓ Data amount is so large to receive.
- ✓ Less human resource for data processing
- ✓ Welcoming for strengthen of WG and SC
- ✓ Hoping establishment of SOP

Fig. 5-4-3-1 Participants of the Conference

(4) ISDR Asia Partnership (IAP) 1st meeting

On 3-5 June in Bangkok, Thailand Asian Disaster Reduction Center (ADRC) participated in the IAP meeting which was attended by around 90 participants from 17 Asian countries and 33 international institutions. The main focus of this IAP was to discuss the way forward from the 3rd World Conference on Disaster Risk Reduction and the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) in the Asian Region.

At first, the Secretariat of UNISDR explained the background of this meeting; the 1st Asian Ministerial Conference for Disaster Risk Reduction (AMCDRR) after SFDRR will be hosted by the Government of India in November 2016, and its intended outcome of this AMCDRR in India will be to an "Asian Regional Implementation Plan of the SFDRR". Then, the Government of India showed the process of preparation toward the next AMCDRR.

In this meeting, considering the importance of involving the wide-range stakeholders, a session specially devoted to the public private partnership was held and the various participants such as ADPC and Japan Bosai Platform introduced their activities. ADRC Executive Director, who is also one of co-chairperson of APEC Emergency Preparedness Working Group, introduced ADRC's activities like as the research on the dissemination of BCP among small / medium sized enterprises (SMEs) in the APEC member economies and the editing guideline on BCP for SMEs, and declared support to PPP activities by UNISDR.

Fig. 5-4-4-1 Participants of the Conference

1) Asian Leaders' meeting toward implementation of the Sendai Framework for Disaster Risk Reduction in Asia", and the "2nd ISDR Asia Partnership (IAP) meeting of 2015"

ADRC participated in the "Asian Leaders' meeting toward implementation of the Sendai Framework for Disaster Risk Reduction in Asia", and the "2nd ISDR Asia Partnership (IAP) meeting of 2015", 17-19 November 2015, New Delhi, India On the first day in the morning, the "Asian Leaders' meeting toward implementation of the SFDRR in Asia", a senior level meeting took place, which was attended many political leaders in Asia.

Shri Kiren Rijiju, Hon'ble Union Minister of State for Home Affairs, Government of

India opened and set the context of the meeting in his welcome remark, followed by a keynote address by Ms. Margareta Wahlstrom, UN Special Representative of the Secretary. Senior level representatives from seven countries including AMCDRR host countries in the past and in the future, had then delivered their statement on their experience and way forward; People's Republic of China, Republic of Korea, Indonesia, Royal Thai Government, Mongolia, Japan and Afghanistan.

Mr. F. Matsumoto, State Minister of Cabinet Office, Government of Japan, hosting the 3rd UN World Conference on Disaster Risk Reduction, expressed their gratitude to the wide participation in the Conference in Sendai and their strong will to support the international community in implementing the SFDRR, in particular, by providing know-how to develop indicators and to strengthen governance. Minister Matsumoto stressed also further collaboration with ADRC and other regional organizations by highlighting the ACDR2016 in Phuket in February 2016. He also encouraged supporting the UN resolution designating the World Tsunami Day by referring to their projects of awareness raising to reduce the damages of Tsunami in Asia. Shri Rajnath Singh, Hon'ble Union Home Minister of the host country, India also attended the meeting and expressed his strong hope that the meeting would set the policy directions toward the AMCDRR in 2016.

In the afternoon, the first session of the IAP meeting focused on the AMCDRR in 2016. After the introduction of the agenda by Ms. Kan, Head, UNISDR Asia Pacific office, Ms. Wahlstrom gave her key note, encouraging political commitment to implementing SFDRR in Asia, followed by an update from the host country, presentations by member countries, and those by regional organizations. ADRC reported about its major activities after Sendai and encouraged a wide participation in the ACDR 2016.

Morning session of the second day was focused on the Asian regional plan. A series of presentations to facilitate regional planning was made including those on monitoring of the SFDRR, and indicator. In the afternoon, participants discussed in one of the three groups aiming to provide inputs to develop the Regional Plan. Sector by sector implementation of SFDRR was also spotlighted as well after the coffee break.

The last day started with a panel discussion on local implementation of SFDRR attended by the participants from subnational governments including Ms. Yukimoto Ito, Vice Mayor of Sendai city, Japan. Three parallel sessions in the afternoon continued to discuss local implementation by focusing on assessment of local risk and resilience, local DRR strategies and plans, and inclusive and community-managed approaches, the outcome of which was shared at the final plenary.

(5)The 8th GEOSS Asia-Pacific Symposium

ADRC participated to WG1: GEOSS Asia-Pacific Major Natural Disaster Monitoring (AP-MaNDM) of 8th Global Earth Observation system of systems (GEOSS) Asia-Pacific Symposium held at 9-11 September in Beijing, China.

In the first session of WG1, current situation of space-based monitoring for natural disaster risk reduction in each country was reported. Then, the global/regional cooperation of space technology for disaster management session was held. In this session, ADRC made a presentation of the Sentinel Asia, which has been promoting the cooperation of disaster management organizations and space agencies. Furthermore, Mr. Suzuki, former executive director proposed to develop more resilient platform for the collaboration with DRR and Space technology, and WG1 agreed to a cooperation for the realization of the platform.

Fig. 5-4-5-1 Participants of the Conference

(6)Malaysia-Japan International Institute of Technology (MJIIT)

According to request of JICA, ADRC made some advice and cooperation for establishment of Disaster Management Master Course of MJIIT at September and November in Kuala Lumpur, Malaysia. Principal items are as follows.

- ✓ Confirmation of whole schedule, evaluation and input for the curriculum.
- ✓ Recommendations to include about stream of international cooperation for DRR such as HFA and SFDRR, and the role of international cooperation agency (UNISDR, AHA center, etc.) in the master course ware accepted.
- ✓ Due to the high interest of MJIIT side for Sentinel Asia, which is conducted by ADRC, JAXA, etc., ADRC invited MJIIT to participate as one of the Disaster Analysis Node (DAN).
- ✓ Confirmed the intention of the announcement in the Asian Conference on Disaster Reduction (ACDR2016) to be held in Thailand in February next year for the Dean.

For the Disaster Management Master course to be started in February 2016, ADRC hopes to continue cooperation include to utilize it as an opportunity to strengthen staffs of ADRC member countries, of the staff capacity.

(7) Conferences of Asia-Pacific Economic Cooperation

ADRC participated in APEC's Emergency Preparedness Working Group, EPWG, as a co-chair. Emergency preparedness is one of the key elements of the majority of APEC economies, as natural disasters that affect one member economy could have significant spill-over effects in other economies. EPWG in cooperation of many other WGs and international organizations and private sector as well as the member economies plays a constructive role in enabling the APEC region to better prepare for and respond to emergencies and disasters by helping to reduce the risk of disasters and building business and community resilience. In the fiscal year 2015, ADRC attended the following meetings.

1) APEC Workshop on community-based disaster risk management in response to climate change

The workshop was jointly organized by the Ministry of Foreign Affairs, the Ministry of Agriculture and Rural Development, the Ministry of Natural Resources and Environment, and the Quang Ninh provincial People's Committee as one of the initiatives by Vietnam in preparation for the country's hosting of the 25th APEC Summit in 2017.

The workshop, attended by around 100 participants from member economies, focused on community-based disaster management efforts of member economies as well as those of international organizations and adopted a summary report, the essence of which was presented at the 9TH Senior Disaster Management Officials Forum, held 22-23 September 2015 in Iloilo City, Philippines.

ADRC made a presentation in the Session 2 titled "Innovative approaches to investment and technology" chaired by USAID and raised some steps after Sendai, including those towardWorld Tsunami Day, Community-based DM well adapted to the ageing and urbanizing Asia, and better bridging of scientific and locally based knowledge. ADRC also delivered a closing remark of the workshop.

Fig. 1-2-2-7-1 Participants of the Conference

2) APEC the 9tH Senior Disaster Management Officials Forum

ADRC attended an APEC senior level meeting on disaster management, as a co-chair of EPWG. The meeting was hosted by the National Disaster Risk Reduction and Management

Council (NDRRMC) and the Office of Civil Defense (OCD), Philippines. The Forum will be attended by APEC economies, private sector, non-government organizations and so on. The meeting raised diverse topics on DRR and contributed to sharing of best practices of the various member-economies. From Japan, Mr.Yoshiyasu HYOTANI, Deputy Director-General for Disaster Management Bureau, Cabinet Office, made a presentation titled " Protecting the Economic Interests from the Disasters" focusing mainly on the economic impacts by the Great East Japan earthquake and the recovery from it.

As an output of the Forum, the 'APEC Disaster Risk Reduction Framework', a policy document to address disasters and the "new normal" to be faced with the member economies, was discussed, which was endorsed in mid-October and presented to the Concluding Senior Official's Meeting (CSOM) for information and submitted to the APEC Ministerial Meeting (AMM).

3) APEC Workshop on Application of Big Data and Open Data to Emergency Preparedness Phase 1 (EPWG 01 2014A)

ADRC participated in an APEC workshop focusing on big data and open data application to emergency preparedness, as a co-chair of Emergency Preparedness Working Group, EPWG. The workshop was attended by more than 20 participants from APEC economies, universities and research organizations including Chile, Indonesia, Japan, Korea, Malaysia, Mexico, Peru, Singapore, Thailand, the United States and Vietnam.

The workshop was opened by a statement by Mr. Chung-Liang Chien, Deputy Minister of Ministry of Science and Technology of Chinese Taipei, followed by a keynote by Mr. Roger Stone, Assistant Administrator for National Continuity Programs, Federal Emergency Management Agency U.S. Department of Homeland Security, focusing on "Best Practices for Alert and Warning Systems, Leveraging Public Private Partnership". Another keynote was then delivered by Dr. Wei-Sen Li, Co-Chair of EPWG and Secretary General, National Science and Technology Center for Disaster Reduction on topic of Enhancing Regional Digital Preparedness on Natural Hazards - The Application of Science and Technology in DRR Decision-Making."

ADRC attended the first two sessions on the 1st day. Session 1: "Big datasets for disaster risk reduction" highlighted some best practices of the digital emergency preparedness, in preparing and collecting big dataset to mitigate adverse impacts brought by disasters. In the session 2: "Regional projects to improve digital emergency preparedness", ADRC reported , after summarizing recent government policy development on big data and open data in general, about diverse efforts in Japan to strengthen institutional information sharing among the relevant ministries regarding disaster relief activities.

Three sessions as follows took place as well: (3) Practical applications of big data or open data, (4) Synergies with industry, private sector and crowd sourcing, and (5) Challenges to embrace the new trend. Data collections are the basic digital emergency preparedness to mitigate adverse impacts brought by disasters.

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 currently consists of 17 governments, UN agencies, and international organizations including ADRC (as of March2014).* 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 the Terms of Reference, IRP at Kobe functions as IRP secretariat and is

responsible for convening IRP Steering Committee meetings and disseminating information on IRP activities and outcomes.

* IRP members: Asian Disaster Reduction Center (ADRC), Hyogo Prefectural Government, International Labour Organization (ILO), Ministry of Foreign Affairs of Italy, Cabinet Office of Japan, Swiss Agency for Development and Coordination (SDC), United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), United Nations Human Settlements Programme (UN-HABITAT), International Federation of Red Cross and Red Crescent Societies (IFRC), United Nations Secretariat of the International Strategy for Disaster Reduction (UNISDR), the World Bank, World Health Organization (WHO), Asian Development Bank (ADB), United Nations Centre for Regional Development (UNCRD), United Nations Office for Project Services (UNOPS), Coordination Center for the Prevention of the natural Disasters in Central America (CEPREDENAC)

6-3. IRP Activities in FY 2015

6-3-1. "IRP's International Recovery Forum 2016"

"IRP's International Recovery Forum 2016 ～"Sending the Message of Build Back Better", jointly organized with ADRC, was held in Kobe, Hyogo, Japan on 26 January 2016, with over 180 participants, including government officials, practitioners, experts, policymakers, and students from 37 countries. Mr. Stefan Kohler of UNOPS opened the Forum, and it was followed by a welcome message delivered by Mr. Kaoru Saito, on behalf of Mr. Toshinori Ogata, Deputy Director-General for Disaster Management Office of the Cabinet Office of Japan. Like the previous forums, Governor Mr. Toshizo Ido of Hyogo Prefecture addressed the participants regarding the creative reconstruction and the importance of implementing both soft and hard measures in DRR. In between the discussions, two dignitaries delivered special presentations, namely Mr. Tatsushi Nishioka of the Ministry of Foreign Affairs Japan who delivered a message on "World Tsunami Awareness Day" and Mr. Neil McFalane of the UNISDR who made a presentation regarding the outcome of the Third UN World Conference on DRR and the Sendai Framework for Disaster Risk Reduction 2015-2030 focusing on Priority Four's Build Back Better in Recovery, Rehabilitation, and Reconstruction. In his presentation, he shared expectations to IRP which will play an important role in advising on the progress and challenges in the implementation of the "Build Back Better" priority of the Sendai Framework, along with the New IRP Strategy Framework. Mr. Kaoru Saito of the Cabinet Office of Japan closed the Forum.

Fig. 6-3-1 "IRP's International Recovery Forum 2016"

6-3-2. Outline of Learning Events on Build-Back-Better

ADRC / International Recovery Platform (IRP) organizes learning events on build-back-better, including (i) Workshop on Disaster Recovery Planning; (ii) Training of Trainers on Build-Back-Better, and (iii) Parliamentary meeting on Build-Back-Better. The key reference materials for these learning events are the Guidance Notes on Recovery which were developed by ADRC/IRP. These guidance notes offer menu of options and highlight lessons and good practices from recovery processes around the world clustered into 11 themes: Shelter, Livelihood, Environment, Gender, Infrastructure, Governance, Health, Psycho-social, Climate Change, Telling Live Lessons, and Recovery Planning.

Fig.6-3-2 Guidance Notes on Recovery

In FY2015, ADRC/IRP organized these learning events in Bangladesh upon request of the country, and upon recognition than Bangladesh is a disaster-prone country with low capacity.

The Workshop on Disaster Recovery Planning, 25-27 May 2015, gathered over 50 high level and technical delegations from various ministries of the government, universities, development partner organizations, NGOs, and private sector.

Fig. 6-3-2 Workshop on Disaster Recovery Planning

The objectives of the workshop were: (i) discuss recovery agenda in Bangladesh in the context of the Sendai Framework for Disaster Risk Reduction; (ii) brainstorm strategies and actions on recovery that will be integrated in the existing development plans and related planning instruments; (iii) review and update the Bangladesh Disaster Recovery Action Plan; (iv) explore options the strengthening of existing policy frameworks, including amendments to the Disaster Management Act of 2012, Standing Orders on Disaster, and the National Plan for Disaster Risk Reduction; and (v) enhance linkage among government, partners, and universities in understanding disaster recovery.

The Training of Trainers on Build Back Better, 26-27 October 2015, gathered over 40

professors and lecturers from 16 universities in Bangladesh. The objectives of the two-day training of trainers were: (i) integrate build back better and urban resilience agenda in the academic curricula on disaster risk management; (ii) create a standby pool of volunteers, comprising lecturers and students, who are oriented in the concepts and operations of applying build back better as well as promoting urban resilience; (iii) facilitate the creation of focal points for collecting disaster-related data at participating universities; and (iv) enhance capacities of participants to train other lecturers, students, and practitioners.

Fig. 6-3-2 Training of Trainers

The parliamentary meeting, 28 October 2015, was convened to inform members of parliament about the relevant contribution of "build back better in recovery, rehabilitation, and reconstruction" in achieving resilience and sustainable development in Bangladesh. The meeting was specifically aimed at increasing the parliamentarians' understanding of "build back better" to address existing gaps in policy and legislation as well as to play a more active role in advocating for pertinent policy changes and respective budget allocation.

Fig. 6-3-2 Parliamentary Meeting

6-3-3. Workshop on Disaster Recovery Planning

- Date: 25-27 May 2015
- Place: Dhaka, Bangladesh
- Organizers: ADRC/IRP, Government of Bangladesh, Build Back Better Foundation

- Participants: 55 Government Officials and representatives from NGOs and private sector

Fig.6-3-3 Participants of the Workshop

The event was inaugurated by Mr. Mofazzal Hossain Chowdhury Maya Bir Bikram MP, Honorable Minister, Ministry of Disaster Management and Relief (MoDMR), Government of the People's Republic of Bangladesh, who expressed commitment to pursue effective disaster management programs by incorporating 'build back better'. At the closing, Mr. Hasanul Haq Inu MP, Honorable Minister, Ministry of Information, assured the participants that build back better efforts in recovery, rehabilitation, and reconstruction will be advocated in Bangladesh through the support of the ministry and media organizations. At the setting up of the three day workshop, a panel discussion was organized for the Overview of Recovery Issues in Bangladesh. Mr. Mesbah ul Alam, Honorable Secretary, Ministry of Primary and Mass Education, Government of the People's Republic of Bangladesh was the Chief Guest. The panelists were: Prof. Dr. Mahbuba Nasreen, Director, Institute of Disaster Management and Vulnerability Studies (IDMVS); Prof. Dr. A.Q.M. Mahbub, Department of Geography and Environment (DGE), University of Dhaka; Major A.K.M. Shakil Newas, Director (Operation & Maintenance), Fire Service and Civil Defence; and Mr. Kabir Faizul, Director, Humanitarian and Resilience Programme, CARE Bangladesh. Mr. Syata Brata Saha, Additional Secretary, Ministry of Disaster Management and Relief (MoDMR), chaired the session.

In addition to the group workshops (where participants deliberated on strategies and actions for recovery), each day of the three-day event was highlighted with panel discussion to reflect on key recovery issues in Bangladesh. The topics of discussion were focused on risk-financing, risk-insurance, urban safety, role of media, role of universities, and community-based recovery. The members of the panel were from relevant government agencies, private sector, universities, international development organizations, and NGOs. In particular, representatives from the Ministry Finance, Ministry of Disaster Management and Relief, Ministry of Planning, University

of Dhaka, Bangladesh University, CARE International, Islamic Relief, UNDP, OCHA, UNOPS, Christians Aid, Bangladesh NGOs Network for Radio and Communication (BNNRC), and Bangladesh Disaster Preparedness Centre (BDPC) served as panelists and shared experience as well as expert opinions. In one of the panel discussions, the IRP co-chair Mr. Stefan Kohler served as panelist.

Outcomes: Recovery issues experienced in Bangladesh were identified by the participants and came up with initial listing of strategies and actions along various sectors, including infrastructure, housing, livelihoods, health and psychosocial, among others to be integrated in the proposed Pre-Disaster Recovery Plan of Bangladesh. On top of this, the event was a rare occasion to bring together a wide array of inter-ministerial delegates as well as disaster risk reduction practitioners and experts who were further oriented on the 'build back better' options in the context of the Sendai Framework for Disaster Risk Reduction. The presence of key ministers and their respective secretaries indicated positive sign of putting in place policies and programs to further mainstream recovery agendas such as establishing a national recovery platform, recommending recovery responsibilities for the Inter-Ministerial Disaster Management Coordinating Council to be articulated in the SOD, and endorsing the Bangladesh Disaster Recovery Action Plan.

Next Steps: On the bases of the workshop outcomes, the following next steps were identified. Firstly, a parliamentary meeting on 'build back better' will be organized at the Bangladesh Parliament to discuss disaster risk reduction and recovery issues that require legal support and legislation. Under the auspices of the Parliamentary Standing Committee on the Ministry of MoDMR and along with the Build Back Better Foundation (BBBF) of the ISRSDRR, the Inter-Parliamentary Union (IPU), the Islamic Relief, and the IRP, the parliamentary meeting is proposed on 16 June 2015.

Secondly, the MoDMR through the support of UNDP Bangladesh will take forward the initial strategies and actions for Pre-Disaster Recovery Plan by organizing a writeshop on the first week of August 2015. The expected outcome of the writeshop is a draft Pre-Disaster Recovery Plan of Bangladesh which will be coordinated by the MoDMR. Relevant ministries, agencies, and stakeholders are expected to participate in this event.

Thirdly, MoDMR with technical assistance from BBBF and UNDP will advocate integration of recovery agendas in existing policy and planning instruments in Bangladesh, including the Delta Plan that is facilitated by the Ministry of Planning.

Fourthly, MoDMR with the support from UNDP and BBBF shall take further steps to advocate in linking up key stakeholders in Bangladesh so that the Inter-Ministerial Disaster Coordinating Council (IMDCC) is convened and recovery agenda is integrated in the plans. Among the specific recommendations is the establishment of a National Recovery Platform and the creation of a

dedicated recovery capacity and cell within MoDMR.

Finally, new programs and projects to promote build back better shall be proposed by BBBF in collaboration with MoDMR, UNDP, and other relevant stakeholders. The initial proposals include: (i) campaign for safe schools, (ii) building critical mass of local recovery experts and volunteers, (iii) partnership between local universities and international knowledge hubs to promote recovery agenda in school curricula as well as facilitate knowledge-sharing and exchange, and (iv) partnership with media in increasing level of awareness among policymakers, practitioners, and communities on recovery.

6-3-4. Training of Trainers on Build-Back-Better

- Date: 25-27October 2015
- Place: Dhaka, Bangladesh
- Organizers: ADRC/IRP, Government of Bangladesh, Build Back Better Foundation
- Participants: 40 professors and lecturers from 16 universities in Bangladesh

Fig. 6-3-4 Training of Trainers Participants

The Training of Trainers reaffirmed that universities play an important in mainstreaming build back better as well as contribute in advocating for urban resilience, by integrating these agendas in the course curricula, research, and outreach. Additionally, university lecturers and students can be organized into a standby pool of volunteers who are oriented and trained in both concepts and operations of disaster risk reduction and recovery. This pool of volunteers can be quickly activated in case of disasters.

In organizing a pool of volunteers, a programmatic direction may be initiated to apply the knowledge learned from the training. More specifically, in time of disaster, volunteers can link closely with fire brigade department, disaster management office, and other related government and non-government agencies to assist in emergency and response. To further apply their knowledge, volunteers can also be tapped to provide support in damage, loss, and needs

assessments after the disaster. This is a relevant contribution of the volunteers, particularly in the urban areas, because during normal times a systematic collection and management of disaster data will be facilitated by the volunteers under supervision of specific departments of the university. At each participating university, departments offering disaster management courses will serve as area focal point for collecting disaster-related data which can be analyzed by students and lecturers alike. The database, which will be hosted in these university departments, shall be openly accessible to government agencies as well as other relevant stakeholders. In this manner, sharing of information and experience to improve disaster management can be facilitated.

Outcomes: The outcomes of the training were: (i) cadre of lecturer-trainer oriented on build back better and urban resilience to do cascading workshops in Bangladesh; (ii) a standby of pool of volunteers, which can be tapped in case of disasters especially in urban areas; (iii) a cascading plan for mainstreaming build back better and urban resilience in the academic curricula in other universities and academic departments; (iv) establishment of focal points in the participating universities for collecting disaster-related data; and (v) a training manual on build back better and urban resilience.

6-3-5. Parliamentary Meeting on Build-Back-Better

- Date: 28 October 2015
- Place: Dhaka, Bangladesh
- Organizers: ADRC/IRP, Government of Bangladesh, Build Back Better Foundation
- Participants: 40 Members of Parliament and other stakeholders

Fig.6-3-5 President of Interparliamentary Union

At the meeting, the parliamentarians recognized that the Sendai Framework for Disaster Risk Reduction 2015-2030 provides a strong guidance on how to support national and local efforts to draft, amend, and adopt pertinent sectoral laws and regulations as well as allocate budget. The meeting highlighted the importance of giving greater emphasis on “how to” integrate build-back-better in policies/legislation, as pointed out by most speakers. At the inaugural, the

speakers already identified some actions that might be taken.

- Mr. Stefan Kohler, Chair of International Recovery Platform, suggested that the National Recovery Plan of Bangladesh, aside from developing it through inter-ministerial and inter-sectoral approach, has to be institutionalized to secure development continuity by building back better in recovery.

- Saber Hossain Chowdhury MP, President of the Inter-Parliamentary Union (IPU) and UNISDR Champion for Disaster Risk Reduction, argued that parliamentarians need to adopt a new approach in formulating related policies to achieve sustainable development, i.e. shifting from "managing disasters" to "managing risks". This approach points the relevance of pre-disaster recovery planning to reduce risk, including investing appropriate amount of resources to build back better.

- Mr. Dhirendra Debnath Shambhu MP, Chairman of the Parliamentary Standing Committee of the Ministry of Disaster Management and Relief (MoDMR), outlined the need for parliamentarians to apply modern information technology to support disaster risk reduction policies/legislation as well as implementation. One specific action he advocated is to lay the legal foundation as well as the legal enabling environment for the Bangladesh "Delta Plan", aligning it with the Sendai Framework for Disaster Risk Reduction.

- Md. Shah Kamal, Secretary Ministry of Disaster Management and Relief, cited the role of parliamentarians to facilitate an enabling legal environment to allocate budget for disaster recovery, including allocation for volunteer groups that can assist in recovery efforts. A modest budget allocation is needed to cover build back better approach in all sectors.

Issues, Challenges, and Opportunities: At the technical session, the speakers provided essential information on some of the key issues on disaster risk management and build back better processes in Bangladesh, which the parliamentarians may be able to help address through policies and legislation. At the onset, it was recognized that the concept of build back better in recovery is not yet clearly articulated in the Standing Orders on Disaster (SOD) and National Plan for Disaster Management. Likewise, the Disaster Management Act of 2012 does not stipulate predictable funding for recovery. On top of these, there are underlying issues in Bangladesh that need to be tackled including level of understanding on disaster vulnerabilities, limited resources base, high population density, cultural risk taking behavior, lack of relevant capacities, and transboundary issues. All these factors need to be considered in order to have a holistic perspective of risk management and build back better.

To effectively implement build back better, the technical aspects and leadership aspects of governing recovery, have to be addressed including mechanisms for coordinating all recovery actors, engaging the private sector, and adopting multi-sectoral approach in planning and implementation. There are opportunities to adopt appropriate mechanisms in the ongoing

recovery programs in Bangladesh, such as the Cyclone Preparedness Programme (CPP), Early Recovery Facilities (ERF), and Emergency Cyclone Recovery and Restoration Project (ECRRP) as well as those humanitarian programs, including Vulnerable Group Feeding (VGF), Gratuitous Relief (GR), and Housing Grants for the ultra-poor people.

The current Disaster Management Act of 2012 offers several entry points to integrate disaster recovery. Among these are the disaster fund for districts and Upazila; volunteerism, training and research institute disaster risk management; respective committees at all levels, penal provision, publicity, and awards.

Recommendations: Considering the knowledge and information imparted at meeting, the following recommendations were made to guide the efforts of parliamentarians:

- Develop strong governance for risk-informed and risk resilient sustainable development
- Develop coherent policies, targets, indicators, and monitoring system at all levels, especially at national level, among development, disaster risk reduction and climate change to prevent new disaster and climate risk from being created and thus protect future socio-economic development
- Promote sharing of information and know how, innovation, and research
- Promote international partnership and cooperation at all levels to address challenges in disaster risk reduction, climate change and sustainable development
- Engage private sector and business for risk-resilient private investment
- Encourage stakeholders to complement governments in implementing the Sendai Framework for Disaster Risk Reduction, particularly Priority Four

To achieve resilience and sustainable development, there is a need to review the current status of development policies and legislation to determine if they are sufficient to guide Bangladesh in achieving risk resilient development – protect lives, livelihoods, development sustainability, and growth. It is critical to make national and local risk assessment available to assist the development of national risk-informed plans and regulations for risk sensitive development practice.

As part of the way forward, the parliamentarians along with other relevant stakeholders must engage in reviewing and revising laws and legislations, especially those related to building code, food, health, infrastructure, environment, and livelihoods. These efforts must be complemented with awareness raising, capacity building, and monitoring of programs and activities. Among specific recommendations mentioned by the discussants and some members of parliament at the technical session were: (i) tapping the role of engineers in designing build back better

infrastructure; (ii) activating the disaster management committees at Upazila, Union, and Ward level as stated in the Disaster Management Act; (iii) advocating risk management and build back better approaches in other standing committees to enrich resilience at various sectors, including economic sector and private sector; (iv) increasing the level of awareness and practice on disaster risk management and build back better; (v) promoting legislation on build back better that enhances the capacities of communities; (vi) ensuring gender concerns, e.g. women participation, in workshops and learning events on disaster management and build back better; (vii) adopting pre-disaster recovery plans to mitigate risks; (viii) engaging local people, Upazila level, in build back better processes by promoting volunteerism; (ix) engaging women parliamentarians in the programs implemented by the Ministry of Disaster Management and Relief; and (x) Continuing dialogue on assessment and improvement of policies/legislation as well as programs and projects on disaster management and build back better.

7. Public Relations Activities

In order to enhance its visibility, to establish and maintain cooperative relationships with as many organizations as possible, and to contribute further to international efforts for disaster risk reduction, ADRC has been using the mass media to conduct its public relations campaigns extensively, while actively participating in international conferences and events.

7-1. Promotion through Mass Media

ADRC has been making active efforts to attract TV, radio, newspapers and media coverage to publicize its activities not only to disaster reduction practitioners but also to the general public. Some of activities, media coverage and others are listed below.

TV/Radio Coverage

Media	Date	TV/Radio Station	Description
TV	Mar. 17, 2015	The Jakarta Post	ADRC Senior Researcher, Mr. Arakida's visit to observe the current tsunami countermeasures in Indonesia was introduced by "Serambi on TV".

Newspaper and Magazine Coverage

Date	Name	Features
Apr. 17, 2015	Kobe Shinbun	Prof. Hamada, ADRC Chairman, stresses that Japan’s international cooperation in the field of disaster risk reduction as a whole of Japan should be well aware of
Apr. 27, 2015	Kobe Shimbun	ADRC is collecting the information to support the affected area of the Nepal earthquake.
Jun. 19, 2015	Kobe Shinbun	The effort of the ADRC's international cooperation in disaster risk reduction was highly evaluated in the White Paper on Disaster Management2015
Jul. 01, 2015	The Daily Engineering & Construction News	The government will hold workshops in 2016 together with ADRC to raise awareness of the World Tsunami Day. Asian Conference on Disaster Reduction 2016 (ACDR2016) will be held in Phuket, Thailand.

Aug. 18, 2015	Yomiuri Shinbun	Case studies in English will be published on the website of the IRP in order to disseminate the know-how on disaster reconstruction to the world
Mar. 17, 2015	The Jakarta Post	Mr. Arakida, ADRC Senior Researcher, made a study visit to observed current tsunami countermeasures in Meulaboh, Indonesia and gave a lecture at the state community college to approximately 300 students.
Jan. 16, 2016	Yomiuri Shinbun	Regarding the DRR technology development by the private company, Mr. Arakida, ADRC Senior Researcher, points out that the spread of products from such companies will intensify the DRR capacity of the society
Jan. 27, 2016	Kobe Shinbun	IRP's International Recovery Forum 2016 was held in Kobe, Japan attended by 37 countries. Cases of recovery around the world were reported.
Jan. 30, 2016	Asahi Shinbun	Ms. Kondo, ADRC Executive Director and Mr. Kochi, IRP Senior Recovery Expert discussed the recovery from Nepal earthquake in International Disaster Reduction Forum (DRA Forum 2016).
Feb. 25, 2016	MGR Online	Asian Conference on Disaster Reduction 2016 (ACDR2016) was held in Phuket, Thailand.

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 7-2-2-1 Participationin International Conferences

Conference	Date	Venue	Sponsors	Attendee	Contributions
IORA Sustainable Development Programme Workshop	April 20-21, 2015	Tanzania (Dar Es Salaam)	Indian Ocean Rim Association (IORA) and Prime Minister's Office of the Government of the United Republic of Tanzania	Mr. Kouchi	Presented that ADRC and IRP have long been promoting and implementing multilateral cooperation on disaster reduction and recovery by sharing Japan's technologies, experiences, and lessons as well as knowledge management
UNISDR Asia Partnership (IAP) Meeting	June 3-5, 2015	Thailand (Bangkok)	United Nations International Strategy for Disaster Reduction(UNISDR)	Mr. Natori	Introduced ADRC's activities including the research on the dissemination of BCP among small / medium sized enterprises (SMEs) in the APEC member economies and the editing guideline on BCP for SMEs
Preparatory meeting for Sentinel Asia Steering Committee	June 30-July 1, 2015	Singapore	Japan Aerospace Exploration Agency (JAXA)	Mr. Nakao Mr. Ikeda	Gave a presentation, covering the activation of emergency observations and the satisfaction of system users based on a questionnaire survey conducted on Sentinel Asia
8th GEOSS Asia Pacific Conference t	Septem ber 9, 2015	CHINA (Beijing)	Group on Earth Observations (GEO)	Mr. Arakida	Gave a presentation on Sentinel Asia

Conference	Date	Venue	Sponsors	Attendee	Contributions
8th GEOSS Asia Pacific Conference t	September 9, 2015	CHINA (Beijing)	Group on Earth Observations (GEO)	Mr. Arakida	Gave a presentation on Sentinel Asia
The First Steering Committee (FSC) Meeting of the Sentinel Asia Step3	October 13-15,2015	Thailand (Bangkok)	JAXA	Mr. Nakao Mr. Ikeda	Gave two presentations, covering the activation of emergency observations and the satisfaction of system users based on a questionnaire survey, and new emergency observation request format conducted on Sentinel Asia
Sentinel Asia Initiative Tsunami Working Session and the 22nd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-22)	November 30-December 4, 2015	Indonesia (Bali)	Indonesian Ministry of Research, Technology and Higher Education (RISTEK-DIKTI), Indonesian National Institute of Aeronautics Space (LAPAN), Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT), and JAXA	Ms.Kondo Mr. Nakao	Gave two presentations on the Role of ADRC in Sentinel Asia and an introduction to ADRC and cooperation with disaster management organizations in the Special Session on Synergies in Space
Third Joint Project Meeting Team for Sentinel Asia STEP3 (JPTM2016)	January 19-21, 2016	Sri Lanka (Colombo)	JAXA, the Disaster Management Center (DMC) and International Water Management Institute (IWMI)	Mr. Ikeda	Gave two presentations, covering the activation of emergency observations and the satisfaction of system users based on a questionnaire survey, and new emergency observation request format conducted on Sentinel Asia

Table 7-2-3-1 Academic Conferences and Symposium

Conference	Date	Venue	Sponsors	Attendee	Contributions
Special lecture of Yamaguchi university	July 16, 2015	Japan (Yamaguchi)	Yamaguchi University	Mr. Arakida	Gave a presentation on WCDRR and Nepal earthquake
Annual conference for Japan Society for Natural Disaster Science	September 25, 2015	Japan (Yamaguchi)	Japan Society for Natural Disaster Science	Mr. Ikeda	Gave a presentation of result regarding tsunami disaster awareness research
Advanced Land Observing Satellite-2 “DAICHI-2” Data Applications Symposium	November 17, 2015	Japan (Tokyo)	Japan Aerospace Exploration Agency (JAXA)	Mr. Nakao	Gave a presentation on Case Study for Space Technology Utilizations for Disaster Prevention

Table 7-2-4-1 Articles

Newspaper/Journal	Date	Author	Title
Kindai Shoubou	Jul. 2015	Mr. Arakida Ms. Kodama Ms. Shiomi	Asian Conference on Disaster Reduction 2015 and Public Forum of WCDRR
Kindai Shoubou	Oct. 2015	Mr. Ikeda	Result regarding tsunami disaster awareness research
Kindai Shoubou	Dec. 2015	Mr. Nakao	Support activity of Sentinel Asia for Myanmar flood 2015