

Proceedings Report

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Manila, the Philippines

11th Asian Crisis Management Conference and
Regional Disaster Risk Management
Community of Practice Meeting

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Table of Contents

About The Conference	v
Conference Objective	1
Opening Speech: ‘Bayanihan’ in Crisis Management, Hon. Francis N. Tolentino	3
Keynote Speech, Hon. Eduardo Del Rosario	5
Keynote Speech, Hon. Yasuki Miyazaki	7
DAY 1: July 10, 2013	9
Session 1	9
Marikina City Disaster Management Best Practices, Hon. Fabian Cadiz (Philippines)	9
Malaysia Civil Defense in the Incident of Lahad Datu, Col. Abdul Wahab Bin Rahim	10
Bangkok Flood Management, Ms. Phimlaphatr Buajud, (Thailand)	10
Disaster Management of Flood and Earthquake in the Province of Jakarta, Mr. Andi Koswara (Indonesia)	11
Measures against the Upcoming Earthquake Directly Striking Tokyo, Mr. Masahiko Seki (Japan)	11
Plenary Discussion	12
Summary	13
Session 2	15
People’s Resiliency and Bayanihan: Key to Recovery of Metro Manila after each Storm, Mr. Ramon Santiago, (the Philippines)	15
Strategic Approaches on Crisis Management, Col. Chin Lai Fong, Director Logistics Department, Singapore Civil Defense Force	16
Construction of Seoul Fire Complex, Mr. Woong Ki Lee, (South Korea)	17
Mutual Assistance for Disaster Operations beyond the Prefectural Police Boundaries, Mr. Hajime Karasawa (Japan)	17
Plenary Discussion	17
Summary	18
Session 3	19
Improving Tokyo’s Disaster Prevention Capabilities, Mr. Magaoka Makoto, (Japan)	19
Strong, Safe and Resilient East Asia and the Pacific: The Role of Preparedness, Response and Recovery in DRM, Ms. Jolanta Kryspin-Watson, (The World Bank)	20
Disaster Risk Management Reflections on Progress and Challenges, Richard Andrews	21
Plenary Discussions	22
Summary	22

DAY 2: July 11, 2013	23
Conference Closing Ceremonies and Agreements and Way Forward for ANMC21	23
Highlights of Field Visit in Marikina	23
Minutes of the Meeting: Regional Disaster Risk Management Community of Practice	25
Annex 1 Conference Participants	29
Annex 2 Conference Agenda	35
Annex 3 Conference Presentations (In CD)	Inside back cover

About the Conference

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The Asian Network of Major Cities 21 (ANMC21) is an international network of Asian capital and major cities, undertaking joint projects on agreed themes such as crisis management and environmental management, and industrial development. It applies this partnership to contribute towards the prosperity/development of the Asian region. Each member city is represented either by the local chief executive, *i.e.*, a mayor or a governor, as the case may be. ANMC21 holds a plenary meeting annually as part of its commitment to share experiences on crisis and disaster management and promotes 12 projects jointly implemented by its member cities.

In this year's Conference, over 100 representatives from the member cities such as Bangkok, Hanoi, Jakarta, Kuala Lumpur, Metropolitan Manila, Seoul, Singapore, and Tokyo participated. In addition to the member cities, thirty eight (38) institutions participated in the Conference, including experts in crisis and disaster management from the World Bank, Asian Development Bank (ADB), Australian Aid, GIZ-City Development Initiative for Asia and from the national government, local governments, civil society and the academia in the Philippines.

The World Bank co-hosted the Conference and hosted a regional Community of Practice (CoP) meeting with disaster and crisis managers at the end of the second day of the Conference. The two-day event was held in Crowne Plaza Manila Galleria in Quezon City, Philippines.

Conference Objective

The East Asia and the Pacific (EAP) has been identified as the most disaster-stricken in the world, where at least 1.6 billion people have been affected by disasters since 2000 (calculated based on EM-DAT data as cited in “Strong, Safe, and Resilient: A Strategic Policy Guide for Disaster Risk Management in EAP”, The World Bank, 2013). The objective of the Conference was to bring together disaster and crisis management experts to share knowledge and best practices in the region as it grips with the reality of increasing disaster risks in the region.

The Conference was divided into three sessions that focused on the most pressing and relevant themes on crisis and disaster management.

The first session showcased experiences and innovations in managing disasters caused by flooding and earthquake. Presenters in this session included Marikina City (Philippines), Kuala Lumpur (Malaysia), Bangkok (Thailand), Jakarta (Indonesia), and Tokyo (Japan).

The second session emphasized the importance of interventions that address varied dimensions of vulnerability. These measures focused on incorporating community approaches for early recovery, a tactical approach to crisis management, urban design and operations and crisis planning, and an inter-regional nature of responding to crisis and disasters. Representatives from the Metropolitan Manila Development Authority (Philippines), Singapore Civil Defense Force, the Fire Department of Seoul (South Korea), and by the Disaster Division Security Bureau of the Tokyo Fire Department (Japan) delivered the presentations in this session.

The third session highlighted the value of learning from experiences from past disasters and how these lessons can inform preparedness, response and recovery in ensuing safety and resiliency of cities. The session synthesized the messages from the preceding sessions and how these lessons underpin a desired comprehensive approach to disaster risk reduction for cities that face high risks from multiple hazards. Presenters included the World Bank and the Tokyo Metropolitan Government.

Opening Speech: ‘Bayanihan’ in Crisis Management

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‘This year’s conference is important not only to the Philippines but also to its neighbors on the effects and risks from typhoon event. The Philippines geographical location within the belt and the ring of fire exposes the country to hazards, especially if a magnitude 7.2 quake hits and affects a majority of our population. Individuals, the private sector through the ‘bayanihan’ spirit may share the responsibility of the government in crisis support and management.’

Delivered by **Hon. Francis N. Tolentino**

Chairman, Metropolitan Manila Development Authority (MMDA)

A little more than a year ago—on the closing day of the 10th Asian Crisis Management Conference (ACMC) in Bangkok—I announced with great pride that the next conference will be held in Metropolitan Manila (or Metro Manila).

Today it is with even greater pride that I welcome all of you to the 11th Asian Crisis Management Conference.

It goes without saying that for us it is a great honor and privilege to host this important event convening representatives of member-cities of the Asian Network of Major Cities 21 (ANMC21), as well as the regional disaster managers of our co-host, the World Bank.

Beyond the distinct honor and privilege, we believe it is especially fitting and proper for Metro Manila to be the host-city for this year’s Conference. That is, given this year’s main theme—‘Recovering from a Devastating Disaster and Moving Forward: A Major Asian City’s Rehabilitation and Recovery Efforts’.

In this regard, our metropolis is a natural specimen and living example. We are a major Asian city that is periodically recovering and being rehabilitated from a devastating disaster and is always trying to move forward.

In fact, our entire country is a magnet for natural disasters and is under constant threat of potential calamities just waiting to happen. That is because the Philippines lies squarely within the typhoon and earthquake belt of Southeast Asia.

I’m sure you have all heard of the super-typhoons that have battered our shores in the past several years—killer storms with gusting winds and torrential rains that cause floods of biblical proportions.

Here in Metro Manila, the prospect of a mega-quake hangs over our heads like the proverbial sword of Damocles. If and when it happens, it is estimated that about 38,000 people will be killed within an hour, more than 100,000 will be injured, at least 13% of residential buildings will be toppled, 20% of vital facilities will be damaged and 1.2 million people will be left homeless.

So the possibility of a major disaster is never too far from the forefront of our consciousness.

In fact, right now we are officially observing National Disaster Consciousness Month. The very fact that it coincides with this Conference is an added indication that Metropolitan Manila's hosting of this event is not only appropriate, but timely as well.

Here we have a metropolis that is naturally primed for crisis and calamity.

On one hand, with our disaster-prone location, we obviously stand to benefit a lot from the insights and action plans produced in this Conference.

On the other hand, with our repeated and multiple exposure to and experience in disasters, we also have a lot to offer.

In our efforts to respond to and recover from these disasters, our budget is invariably modest, our resources are limited and our tools are admittedly not the most technologically advanced.

Thus, out of sheer necessity we are often compelled to seek the support of organizations, companies and professionals in the private sector in the spirit of volunteerism and community service.

This is in line with the Filipino concept of '*bayanihan*'. It means being united as one community voluntarily working together and helping one another to achieve a common goal.

This old Filipino tradition has served us well in times of severe crisis and calamity.

'*Bayanihan*' is a distinctly Filipino word, but I'm sure it has an equivalent in all languages, countries and cultures. That is because it is deeply embedded in the human spirit and in the very idea of community.

We believe, therefore, that it is a viable paradigm, model and methodology for crisis management, for all collective efforts to respond to and recover from major disasters.

As a matter of fact, the seeds of this collaborative idea have already been planted at the very inception of the ANMC21 and its various projects, such as the Network for Crisis Management and this annual Asian Crisis Management Conference.

That is because the rationale for ANMC21 is precisely to promote collaboration, cooperation and the exchange and sharing of information and know-how for the prosperity and development of the Asian region.

'*Bayanihan*' is based on the same principle that animates the ANMC21. It affirms and reinforces the goals of this Conference. It defines the cause and purpose for which we are gathered here.

And so—invoking the '*bayanihan*' spirit—let us work together to advance that cause and fulfill that purpose; so that when the time comes for applying our work to real-life situations, the seeds of hope we have sown will bear fruit and we will succeed in saving, protecting, nurturing, recovering, and re-building lives and our cities in our time and beyond.

I would like to thank the World Bank for co-hosting this event.

I hope you all enjoy your stay in Metro Manila. *Mabuhay ang ANMC21!* 'Long live the Asian Network Of Major Cities21!'

Thank you very much.

Keynote Speech



Delivered by **Hon. Eduardo del Rosario**
Undersecretary, Office of the Civil Defense Administrator and
Executive Director, NDRRMC

‘Crisis is synonymous to stress, due to sleepless nights of coordination. Crisis management will be least stressful if everyone is prepared. There are three main points in crisis management: 1) One should know the risks and hazards and should be able to conduct vulnerability assessments, so that structures may be established for command and control and in unifying all commands. One voice is needed to direct; and if there are too many of them, we could have a crisis. 2) Establish the protocols, Standard Operating Procedures for disaster management, and 3) To rehearse continuously so that roles and responsibilities are clear, in responding quickly and reasonably.’

The hosting of the 11th Asian Crisis Management Conference by the Metropolitan Manila Development Authority is, indeed, a very timely undertaking in our country’s meaningful observance of July as the *National Disaster Consciousness Month*.

I commend the members of the Asian Network of Major Cities 21 for taking a proactive part in crisis management. The strategic measures we have developed, used during disasters, improved over time, and shared with the other countries are our significant contributions in keeping our people safe and our nations disaster-resilient.

The increasing and intensifying frequency of floods, storms, landslides and other natural disasters that are now greatly felt globally call for better mitigation, well-resourced preparedness, systematic response, and adaptive recovery.

Ultimately, crisis management is not the responsibility of a single person or just one group. Crisis managers and leaders of our countries have recognized the essence of educating our people about crisis management.

We have taken actions in pursuing the broadening of our citizens’ awareness. This has cascaded to the farthest communities of our nation, inculcating the vital role of each individual in our collective effort of executing a unified disaster operation.

Knowing what to do, how and when to do it would certainly help in recovering fast from devastation. A refined hazards mapping would likewise facilitate accurate mitigation, as well as, correct rehabilitation.

Let us continue to enhance our capabilities and reinforce our cooperation with each other as we effectively address the adverse effects of climate change and natural disasters.

Together, with adequate force and viable means, you can be true to your theme of 'Recovering from a devastating disaster and moving forward: A major Asian city's rehabilitation and recovery efforts.'

Thank you and a pleasant day to all.

Keynote Speech



Hon. Yasuki Miyazaki

Deputy Director General

Crisis Management, Tokyo Metropolitan Government

For more than ten years, the Asian Crisis Management Conference has held events whereby we congregate in one of the member cities to talk about the common issues that are facing the Asian major cities to share with each other experiences and know how.

Asia has experienced numerous natural disasters such as a major earthquake and the resulting tsunami, typhoons, and torrential rain-causing floods. I hear that here in Manila in August of last year there was a huge damage due to floods caused by torrential rains.

In recent years, Japan has undertaken measures against terrorist attack in urban areas and also against large-scale fire in urban areas. We cannot stop the occurrence of earthquakes and typhoons but we can reduce the human and physical damages to the minimum by strengthening

our measures, that is, by accurately forecasting the damages by using scientific method and by applying the lessons we learned from past experiences.

The great East Japan Earthquake, which took place in year 2011, claimed the lives of 21,000 people. At that time,

Japan received support from everyone in Asia and I would like to take this opportunity to thank you deeply for that. During those times, I was the Commander of the 10th Division of Ground Defense Force of the Ministry of Defense, and was involved in providing rapid response to the earthquake and providing the rescue efforts. It was an extremely difficult situation to cope with given such national calamity. But we did everything we could by cooperating with the government, the local municipalities, the private sector, and all the way down to the residents.

You will hear more about this later in the presentation to be given by the representative from Tokyo. Based on this experience, we are currently promoting various measures so that we can have early rehabilitation and recovery. And also we have reconstructed the way we do urban planning so we can better withstand the damages brought with these disasters.

As the capital of Japan, Tokyo has also extended assistance in recovering the disaster-stricken areas, for instance, by providing personnel to North East Japan, which was struck by the disaster, and by promoting tourism in the affected areas. So I hope these measures would be of use to all of you who are present here and also to the personnel working for the capital of each country.

This year's conference theme is Recovering from a Devastating Disaster and Moving Forward: A Major Asian City's Rehabilitation and Recovery Efforts.

The major cities that are the center of politics and economic activities need to be protected in times of disasters. The urban centers must recover quickly in times of disasters. This should be the outmost interest, not just only of those disaster stricken countries but of the other major cities as well. I hope you will gain new knowledge from this Conference by learning from each

other's experiences in various cities so that we can work together in identifying the needs in order to facilitate smooth rehabilitation and recovery.

I would like to end my message by requesting everyone to improve the crisis management response in the East Asia Region. We can do this by sharing the know-how and the experiences we have with each other and by participating actively in today's discussions.

Thank you very much.

Proceedings and Presentation Summaries

Session 1

Session moderator: Atty. Emerson Carlos
Assistant General Manager for Operations, MMDA

Marikina City Disaster Management Best Practices, delivered by Hon. Fabian Cadiz, Vice Mayor, Marikina City

Vice Mayor Cadiz informed participants of the measures implemented by the City Government to hasten recovery efforts at the wake of two major disasters, namely the Tropical Storm (TS) Ondoy (international name Ketsana) in 2009 and the heavy monsoon rains in 2012.

Highlights of the damages. TS Ondoy inundated 70% of Marikina City with at least 20% of its land area under 20 feet of floodwater. Eleven (of 16) health facilities and 21 public school buildings, which typically function as temporary shelters, were rendered unusable. Marikina City and the National Disaster Risk Reduction and Management Council (NDRRMC) estimated that the cost of damages to properties at Php2 billion (~US\$ 47 million). Marikina City, considered as the “shoe capital” of the Philippines, witnessed how its shoe industry was almost wiped out by TS Ondoy.

Strategic recovery measures from Marikina City. As part of its recovery plan, Marikina City distributed some 50,000 pair of shoes to its indigents to revitalize the shoe industry, which employed a significant number of the local residents. It also enacted an ordinance, which reduced the cost of real property tax by 50% in barangays (villages) affected by TS Ondoy. A tax holiday was put in place to enable the shoe manufacturers restore production. In collaboration with Tzu Chi Foundation, Marikina provided temporary employment opportunities for 40 days to affected constituents to reduce consumption gaps. Moreover, at least 2,000 persons benefitted from a cash-for-work program implemented by the city government.

In 2010, the National Disaster Risk Reduction and Management (DRRM) Law, otherwise known as Republic Act 10121 was established to strengthen the policy and institutional framework for disaster risk reduction. To comply with the law, Marikina City established its own Disaster Risk Reduction and Management Office. It also converged with other local governments which share the Marikina Watershed. It played an active role in forging the Alliance of 7 with the contiguous cities of Pasig, Antipolo and Quezon, and the Municipalities of Cainta, Rodriguez and San Mateo. The alliance members have agreed to coordinate actions for dealing with climate events and disasters. Marikina City also is actively engaged with the other local governments (involving 12 cities and towns) within the Laguna Lake Basin.

Marikina City showcased its programs aimed at localizing disaster risk reduction measures. In partnership with the Department of Science and Technology - Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST- PAGASA) and its Project Nationwide Operational Assessment of Hazards (NOAH), Marikina City established a network of sirens to warn residence of an impending flood and to activate its protocol of a forced evacuation. The

City embarked on a massive and sustained community awareness and mobilization process to empower communities to take necessary actions in times of emergencies. In addition, Marikina City implemented various measures, such as rehabilitation and construction of a network of drainages, slope protection for interior waterways, clearing of easements throughout the City, pumping stations in low lying areas, construction of bicycle lanes along waterways to prevent unsafe settlements, and construction of a road dike as part of its structural measures on flood management to contribute to its long-term resilience. With complementary support from Japan International Cooperation Agency (JICA) and the Department of Public Works and Highways (DPWH), Marikina City embarked on a river rehabilitation program to stabilize and reinforce the river slopes that span the 17 kilometers stretch of the Marikina River.

Malaysia Civil Defense in the Incident of Lahad Datu, delivered by Col. Abdul Wahab Bin Rahim, Commander Civil Defense Training Academy

Col. Abdul Wahab Bin Rahim spoke on the role of civil defense and the roles and responsibilities of each section or office related to crisis and disaster management. The organizational structure of Kuala Lumpur's Civil Defense Organization showed a clear chain of command that emanates from an operations manager down to deputy operations commanders that oversee different aspects of emergency management.

During the 2009 flood event, Kuala Lumpur ascribed its success to the immediate response and recovery efforts of the civil defense to its network of volunteer non-governmental organizations, and other line ministries responsible for emergency response which immediately implemented public health interventions (e.g., vaccination) and food distribution. About 1,039 evacuees were housed in four pre-identified evacuation centers.

Another success factor cited pertains to the importance of the flow of communication in crisis and disaster

management, e.g. the provision of continuous briefings/updates not only to the crisis management team but also to its citizens; and the need to coordinate efforts to distribute grants/reliefs from donors and from neighboring countries like the Philippines. In the plenary, the speaker emphasized the importance of learning from past experiences to enhance future actions, to build knowledge, and to strengthen commitment to protect the citizens.

Bangkok Flood Management, delivered by Ms. Phimlaphatr Buajud, Bangkok Fire and Rescue Officer

Ms. Buajud presented Bangkok's institutional response during the flood incident in 2011, specifically providing an overview of the roles, responsibilities, and protocols of the Drainage and Sewerage Department (DSD), District office, and the Bangkok Fire and Rescue Department (BFRD) in flood management.

Overview. Bangkok is a city with 12 million people covering an area of 1,568 square kilometers. The main river basin is the Chao Phraya River, which divides Bangkok and the Gulf of Thailand. The flood, which happened in July during the monsoon months, reached Bangkok in October and affected 13 million people.

The Bangkok prevention and mitigation plan (2010–2014). The DSD handles flood mitigation and risk planning, and other studies related to disaster risk mitigation and reduction. The District office, on the other hand, serves as the operations group in terms of evacuation and safety and informs communities on disaster risk management (DRM) through capacity building. The BFRD coordinates volunteer responses and undertakes such functions as the training development and delivery to volunteers and staff alike. The Centers of District Offices, the Health Department, and the Environment Department coordinate public health concerns after every flooding incident.

Disaster Management of Flood and Earthquake in the Province of Jakarta, delivered by Mr. Andi Koswara, Jakarta Fire Department and Disaster Management (Indonesia)

Mr. Koswara presented the disaster risk profile of Metro Jakarta, the risk reduction and management efforts being implemented by its authorities, and the institutional mechanisms for crisis and disaster response.

Overview. Metropolitan Jakarta is the capital city of Indonesia. It is led by a governor and under him, five mayors administer Jakarta's 44 districts. The city is highly exposed to multiple hazards, especially with a daytime population estimated to be around 30 M. Forty percent of Metro Jakarta's land area is considered lowland, where 13 rivers traverse through it. The city is also surrounded by at least 12 known subduction faults. The Masterplan of Disaster Management identified 124 flood points and 8 signal areas.

Flood and earthquake risk reduction programs. Even before the recent flood experience in Metro Jakarta in January 2013, Jakarta has been implementing the Adipura Project with the aim of reducing flood risks through structural and non-structural measures. Structural measures include building embankments (east bank flood canal), dredging, and construction of 26 reservoirs. Non-structural measures on the other hand include activities such as public awareness (conducted every Sunday morning), improving early warning system, and urban planning (maximizing green open space development).

To reduce vulnerability to earthquake hazards, Metro Jakarta is emphasizing the importance of adhering to regulation for infrastructure resiliency (Regulation Nbr. 28/200). It has started the implementation of an earthquake micro-zoning and the application of warning systems in high-rise developments.

Institutional mechanism for crisis and disaster response. One of the innovations introduced in Metro Jakarta is the InaSAFE, which combines open source technology with feedback from the community to inform disaster preparedness and reduction efforts. It highlights on the ground feedback mechanism managed by an information

command base at the Jakarta Disaster Mitigation Agency (BPBD). The BPBD chief reports an emergency situation to a Governor, which enables him to coordinate the actions of the mayoral offices, regional agencies, and response units to facilitate the provision of immediate relief, rescue, and recovery efforts.

Measures against the Upcoming Earthquake Directly Striking Tokyo, delivered by Masahiko Seki, Director Fire Academy, Tokyo Fire Department (Japan)

Mr. Seki presented how Japan's historical experience has informed its present actions on preparing and reducing the hazards and impacts of earthquakes. The possibility of another large earthquake, like the Miyagi earthquake, happening in Tokyo is not totally remote. Because of this, all possible measures to reduce the impacts of earthquakes are being considered.

The Great Tohoku Earthquake. On March 11, 2011, at 2:46 pm, an earthquake shook off the pacific coast of Tohoku, with a magnitude scale of 9.0, claiming more than 20,000 lives. The earthquake triggered a series of equally disastrous events: it generated a tsunami that reached 30 meters high, breaching the tsunami wall installed along the coast; the tsunami, in turn, destroyed an oil tank that caused fire to break out in Kesennuma City, Miyagi and caused a nuclear meltdown at the Fukushima Daiichi Nuclear Power Plant.

The reactors and cooling system of the Fukushima Daiichi Nuclear Power Plant were badly damaged when the power plant complex got flooded by the tsunami. The accident resulted in hydrogen explosions that released a large amount of radioactive materials. The Tokyo Fire Department was the first to respond to the event to put the fire out and prevent further explosions.

Lessons of history. While an earthquake of 9.0 seems unthinkable, historical relics and folklores in Japan allude to a similar devastating event that happened in its past. The lessons from the 8.3 magnitude earthquake that hit Jogan in July 869 and the earthquakes that occurred in

1896 and 1933 were considered in preparing for future earthquakes. One such lesson is inscribed on a stone monument erected to remind the Japanese people not to build a house below it to avoid being reached by a tsunami.

Tokyo's response after the Great Japan Quake. One of the hardest lessons brought by the Great Tohoku earthquake relates to how a big disaster can result in complex emergencies, as in the case of the nuclear meltdown. Following this event, the Japanese Government has enhanced its firefighting abilities by adding modern equipment and developing the capacities of fire fighters to deal also with nuclear explosions. Its fire-fighting capacity has been upgraded to be able to respond to nuclear, biological and chemical disasters and complemented by the development and use of 'aviation' fire services. Community-based training and capacity building for residents, including around 300 students, were undertaken to better equip them to act in face of such complex emergency situation.

Plenary Discussion

Sustaining volunteerism

The speakers were requested to further elaborate and share their experiences on sustaining volunteer engagement.

- Marikina City: The City Government conducts regular organizational activities, including regular drills to sustain interest among volunteers.
- Kuala Lumpur: The civil defense office provides incentive and allowances for volunteers.
- Bangkok: Fire fighters are continuously collaborating and exchanging viewpoints on disaster preparedness.
- Tokyo: Japanese people are originally farmer families. The concept of farmers' cooperatives is inherent, and that the spirit of volunteerism runs in their DNA. Both the police and fire departments continue to protect the citizenry and their mission is to leverage the spirit of volunteerism.

- Jakarta: Volunteers are encouraged as early as possible by engaging the youth from elementary to high school in conducting fire drills.

On Marikina's structural measures

In order to reduce flooding in Marikina, the City Government undertakes backfilling which prevents flooding in low lying areas, especially those below sea level. The City Government also upgraded an existing concrete dike by increasing its elevation from 19 meters to 23 meters, based on the flood height recorded during the TS Ondoy (Ketsana).

Coordinating disaster risk management and reduction functions between the MMDA and the local governments in Metro Manila

Metro Manila is composed of 17 local government units which have functions related to disaster risk response, preparation, mitigation, and reduction. The MMDA has been mandated by law to function as the regional DRRM Council for Metro Manila. It has policy, oversight, and coordinative functions over the DRRM policies and actions of the local government units of Metro Manila. MMDA is considered an agency of the national government managing Metro Manila or the national capital region.

The chairman of MMDA wears two hats—one that relates to the overall socio-economic development of Metro Manila and the other deals specifically with DRRM. In both cases, the MMDA is tasked to coordinate policies and efforts to effectively deliver services transcending local boundaries (e.g., development planning, transport and traffic management, solid waste management, flood control, and sewerage management, among others). MMDA creates the venue for policy dialogue and coordination among the local governments in Metro Manila.

Combining these functions, the challenge for MMDA is not just to build back better, but also to build better in the first place. A big concern also relates to prioritizing the relocation of people residing in high risk areas. Three important points were also raised as regards the

Metro Manila experience: (i) how to build and link Metro Manila cities and deepen collaboration; (ii) to make information available to guide decision-making; and (iii) to build instruments to strengthen accountability in delivering outcomes.

Summary

Session 1 emphasized the importance of volunteerism, partnerships and community participation on disaster risk reduction and management (DRRM). Key lessons

from the session include the immediate response to indigent community to deliver basic needs and restore livelihoods (distribution of shoes in Marikina), forging alliances with neighboring cities especially those sharing the same ecosystem (Alliance of 7); and balanced implementation of both structural (*e.g.* improvement of easements and waterways) and non-structural measures (*e.g.* tax incentives/relief) to facilitate recovery and reconstruction. A strong emphasis was made on establishing protocols and clear chains of command as shown by the experiences of Jakarta, Bangkok and Tokyo.

Proceedings and Presentation Summaries

Session 2

Moderator: Mr. Alex Umagat
Camp Commander East Sector, Metro Yakal, MMDA

People's Resiliency and *Bayanihan*: Key to Recovery of Metro Manila after each Storm, delivered by Director Ramon Santiago, Flood Control Information Center Head, MMDA (the Philippines)

Metro Manila suffers from an average of five tropical cyclones yearly, on top of the seasonal monsoon rains. It is estimated that 131 square kilometers (around 20% of total land area) are affected by extreme weather events especially during the monsoon season. The causes of floods in Metro Manila are:

- Natural low topography
- Ground subsidence, due to groundwater extraction
- Indiscriminate domestic waste disposal
- Obstruction of waterways (of which 50% are inaccessible)
- Rapid urbanization
- Clogged and outdated drainage systems
- Incomplete flood mitigating measures
- Extreme variability or rainfall intensity and frequency

The Ondoy experience. In September 2009, TS Ondoy dumped around 500 mm of rain in a period of 12 hours, which is equivalent to two months of average rainfall. This volume easily overwhelmed the capacity of Pasig River to take in water. Residents in high-risk areas did not anticipate the impact of this climatic event. As a result, around 400 persons died, 16,000 houses destroyed, and with an estimated damage of around US\$ 267 million to infrastructure. The impact of TS Ondoy was exacerbated by the significant size of informal settlements living in low-lying areas. Many were not prepared to deal with the disaster, which impeded emergency response and immediate recovery.

These lessons were taken seriously, such that during the monsoon rain in 2012 that also flooded Metro Manila, many people were better prepared and knew the courses of action to take. The spirit of *bayanihan* (volunteerism) also always prevails to help Metro Manila and its citizens recover.

Milestones after the two disasters. The experience from these floods has paved the way for people to change their behavior and prepare for these types of events. Monitoring and warning systems have been upgraded, and a general 'consciousness' for voluntarism has been fostered. The national government even established a financial recovery mechanism through the Catastrophe Deferred Drawdown Option (Cat DDO) program with support from the World Bank. These resources complemented the Government's recovery efforts in the aftermath of Typhoon Pablo (international name Bopha) which hit Mindanao.

Moving forward, the following have been identified as aspects that can help further improve Metro Manila's DRRM strategy:

- Risk sensitive development master plan with careful attention to land use and zoning.
- Ensure business continuity through improved infrastructure and other support facilities.
- Capacity building amongst levels of actors and stakeholders.
- Improve institutional mechanisms to improve accountability.
- Strengthen enforcement of laws, policies, regulations and standards.

Strategic Approaches on Crisis Management, delivered by Col. Chin Lai Fong, Director Logistics Department, Singapore Civil Defense Force

Singapore is not exposed to natural hazards, its crisis management system is geared towards dealing ensuring the safety and security of citizens from man-made events (e.g., fire and acts of terrorism). Being the 3rd densest country in the world, Singapore's crisis management system encompasses rescue and emergency response and educating the general public on emergency preparedness.

Framework. The Singapore Civil Defense Force (SCDF) leads the crisis and disaster management efforts of the government. It adopts a three-pronged crisis management framework of prevention, regulation and mitigation.

Capacity building programs. The SCDF delivers programs on public education and outreach to a variety of groups. Community approaches for emergency preparedness (including for example the use of Smart phone applications designed by the SCDF) are taught to citizens. The youth receive training from the time they reach primary schools (i.e., pre-school kits and especially designed emergency handbooks) until they reach the tertiary level (i.e., specialized training on the National Civil defense for the cadet corps). The SCDF also extends the training programs to domestic workers and migrant

workers alike. Singapore's industries, on the other hand, receive continuous training and are mobilized to participate in either the safety and security watch groups or the Voluntary Company Emergency Response Teams (V-CERTs).

Use of social media. Social media (such as Facebook, Tweeter) has been utilized to reach more individuals and the use of a smart phone application called *MySCDF* has been propagated to promote fire safety. In 2013, Singapore's Fire Safety Act and the Code of Practice for fire precautions were amended to incorporate lessons from previous crises.

Legislation. Safety and security legislation in Singapore goes hand in hand with technology development. To illustrate, all vehicles transporting flammable materials are installed with tracking devices strictly monitored to ensure public safety. Drivers of such vehicles are likewise carefully examined before licenses and other permits are issued.

Institutional framework. The effectiveness of dealing with civil emergency incidences lies on clear institutional and operational chains of command. Three distinct layers of management are present: policy, strategic (where SCDF plays a major role) and tactical. At the tactical level, principles of collaboration among concerned emergency response agencies and the private sector was emphasized.

International partnerships. Singapore also responds to most crises and disasters happening in the region and holds the distinction of being the only country in the Asia-Pacific to be accredited as a "Heavy Urban Search and Rescue Team" by the International Search and Rescue Advisory Group (INSARAG) of the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA). Its elite team of rescuers was deployed in several countries such as Pakistan, China, Taiwan and Japan. The team has provided immediate response to major events such as the Miyagi earthquake in Japan (2011), the Christchurch earthquake in New Zealand

(2011), the earthquakes in Indonesia (2005, 2006, and 2009), the Tsunami in Banda Aceh (2004), and the earthquake in the Philippines (1990).

The SCDF continuously coordinates with the Association of Southeast Asian Nations (ASEAN) Emergency Rapid Assessment Team, the United Nations Disaster Assistance and Coordination, the Joint Environment Unit of the UN-OCHA, and United Nations Environment Programme, as among its major institutional partners.

Construction of Seoul Fire complex, delivered by Mr. Woong Ki Lee, Assistant Manager Fire Department Seoul (South Korea)

Mr. Lee's presentation focused on the best practices implemented by the Seoul Fire Department, specifically in planning its programs within the context of urban resiliency. The Department is in the process of establishing a safety complex to better deliver its services to the general public against incidences of fire.

Overview. The objective of establishing a fire safety complex within Seoul is to maintain the city's position as the fifth safest city globally. The newly planned fire complex specifically aims to unify the control tower to maximize efficiency, to rebuild the old fire academy, and to provide citizens a 54,780 sq.m. safety-learning park in city. The facility is located in Seoul's Eunpyeong-gu (district).

The plan execution. The fire complex will be developed in three phases. The first phase (2013–2017) is estimated to cost W128B (~US\$128M) to support construction of new building for the fire academy, construction of two training towers, creation of a water rescue training pool, establishment of a fire museum, and a 110 challenge course. The second phase (2018) will include the construction of a simulation center, a special training facility and a fitness center and is estimated to cost W24B (~US\$24M). The last phase (2022) of development will include a newly designed Seoul fire department with 119 dispatch centers and would cost W135B (~US\$135M).

Mutual Assistance for Disaster Operations beyond the Prefectural Police Boundaries, delivered by Mr. Hajime Karasawa, Superintendent Disaster Division Security Bureau, Tokyo Police Department (Japan)

Mr. Karasawa's presentation complements an earlier presentation on *Measures against the Upcoming Earthquake Directly Striking Tokyo*, as this highlights the importance of historical knowledge in designing risk reduction plans and programs. Following the 1995 South Japan earthquake, improvements have been introduced in the police disaster response. The Inter-prefectural Emergency Response Unit (IPERU) was created to facilitate inter-boundary or inter-prefectural level of partnerships to respond to crisis and disasters.

Institutional set up of police disaster response. The police force was set up to have two types of units based on the level of response needed during disasters:

- A 'rapid response unit' (the IPERU) that will immediately reach out to affected areas
- 'Ordinary response units' that will complement local forces overwhelmed by disaster events to provide recovery services in an efficient and sustained manner

In 2011, this system was tested during the Miyagi earthquake that prompted a massive dispatch of 6,000 officers after from other regions in Japan within 72 hours. This institutional set up makes it possible for the members of the IPERU to respond even beyond their prefectural boundaries. The disaster response units were also utilized by the Japanese Government to respond to crisis events in the region, such as in Sichuan, China (2008), in Sumatra, Indonesia (2009), and in Christchurch, New Zealand (2011).

Plenary Discussion

Strengths and overcoming weaknesses in disaster response based on city experiences

- Singapore: The strength lies in its capacity to manage a small country state. Some of the weaknesses

(or areas that can be improved) include community preparedness, stringent enforcement measures, and the provision of trainings on preparedness in times of emergencies.

- Japan: The major strength lies with the Japanese' strong values of being 'farmers' and their participation in a cooperative endeavor. One major weakness pertains to issues related to coordination and the execution of 'orchestrated' efforts on disaster management since there are many agencies involved in DRM in Japan.
- Philippines: The strength lies in the Filipino's '*bayanihan*' spirit. Being exposed to may hazards, cities become more experienced and confident in managing disasters. However, as demands are quite huge, the resources to cover all of the phases of DRRM are inadequate.
- South Korea: The country's strength relies on its investments on infrastructure and protective systems (i.e., dams). One weakness identified points to the need to improve the education system on emergency preparedness.

Singapore's lessons from the recent haze incident from Sumatra's forest fire

Singapore responded to the four-day haze through the efforts of the Ministry of Health using available resources that were set aside for other emergencies. During the incident, the Ministry of Health has to utilize the stockpile of masks that were meant for virus outbreaks.

Japan's approach on dealing with cadavers after the quake

Because of the huge number of fatalities estimated to be around 20,000, local governments cremated most bodies.

The values or traits a commander must possess in Singapore's SCDF

A commander should be able to know the situation quickly, to assess priorities, and to decide quickly (attributing to command responsibility). Above all, the welfare of the teams should be in his/her mind.

On potential programs for city-to-city exchange on DRM

ANMC21 provides venue for learning and exchange to its member cities. There have been occasions of sponsorship amongst member cities. For such learning opportunities, the participants usually shoulder their own travel costs.

Makati City shared experience being part of a city-to-city exchange program supported by the Global Facility for Disaster Reduction and Recovery (GFDRR), along with Quito (Ecuador) and Kathmandu (Nepal). The inter-city cooperation proved to be an effective way of disseminating knowledge and capacity building highlighting each of the participating city's comparative strengths and advantage.

Summary

The session highlighted the importance of volunteerism in the success of disaster preparedness, response, and recovery programs and initiatives. Singapore emphasized the need for partnerships, the use of social media to heighten disaster awareness and preparedness, and the strict enforcement of a crisis management framework.

Seoul's presentation mentioned the importance of high quality training and capacity building for an effective DRM system. Designing facilities to become multifunctional is also becoming an important consideration, not just for an effective DRM system, but also to maximize investments.

A constant review of the institutional mechanisms is an important ingredient to the success of Singapore's crisis management system. This review enables the authorities to enforce standards, promote continuity in operations, and enhance recovery mechanisms with the aid of technological innovations.

Disasters do not recognize administrative boundaries. As such, DRM systems should be established to promote partnerships that permit mobilization of resources to augment local capacities that have been overwhelmed by disasters. This system should be able to function as a whole and not as units independent of each other.

Proceedings and Presentation Summaries

Session 3

Moderator: Abhas Jha

Sector Manager East Asia and the Pacific, Transport, Urban and Disaster Risk Management, The World Bank

The World Bank recently launched two publications designed to aid decision makers in their urban resilience efforts. The two key messages from these guide notes are: (i) the biggest driver of disaster risk is urbanization, *i.e.*, increasing population and assets that are along harm's way and the increasing number of poor people that are disproportionately affected; and (ii) risks cannot be totally eliminated; there will always be residual risks to be managed. A case in point is Japan which is considered to be the most disaster prepared country in the world. However, the 2011 Tohoku earthquake that claimed at least 20,000 lives demonstrated how uncertainties in a hazard event could undermine even the most robust disaster management systems. It also showed the importance of establishing early warning systems to empower communities to take the proper courses of action in times of emergencies.

The Philippines, in a similar vein, has displayed significant progress in its disaster preparedness efforts, drawing from the lessons of TS Ondoy (Ketsana) and Typhoon Pepeng (Parma). The country's DRRM law has been enacted and a comprehensive flood plan is being prepared by the Department of Public Works and Highways (DPWH) to reduce flooding risk in Metro Manila. A 'retrofitting' program for infrastructure in the Philippines is also considered as part of the Government's risk reduction efforts.

Improving Tokyo's Disaster Prevention Capabilities, delivered by Mr. Magaoka Makoto, Emergency Intelligence & Disaster Prevention Division Director-in-Charge, Bureau of General Affairs, Tokyo Metropolitan Government (Japan)

Mr. Makoto's presentation focused on how lessons from the 2011 earthquake are being incorporated to improve disaster resilience policies and plans to better protect the capital city.

The restructuring. Since the Miyagi Earthquake, Tokyo has engaged in a regular process of reviewing and updating its disaster prevention system, as captured in the evolving policies contained in Tokyo's Disaster Response Guidelines (2011), an update of 'Tokyo's potential damage due to an earthquake' (2012) and current revision of "Tokyo Regional Plan for Disaster Prevention"(2013).

Three viewpoints. The following principles underpin disaster preparedness efforts: (1) *prepare* (to be an earthquake-resilient society) through self-help, mutual assistance, and improving public health; (2) *protect* so that administrative agencies and the necessary medical and logistical facilities may continue to function to ensure safety, security, and mobility; and (3) *connect* or reach out to disaster victims to alleviate human suffering. To implement these principles, the implementation of a 10-year project to make close-set wooden housing districts fire-resistant (*i.e.*, re-plan roads

and rebuild fire resistant roads) and the sustained efforts to build structural resilient infrastructure (e.g. housing and public schools, roads, bridges, and ports and harbors) would need to be prioritized.

Strong, Safe and Resilient East Asia and the Pacific: The Role of Preparedness, Response and Recovery in DRM, delivered by Jolanta Kryspin-Watson, Regional DRM Coordinator for East Asia and the Pacific (The World Bank)

Disaster events in EAP are becoming more frequent and more costly: Great Tohoku earthquake in 2011 (Japan) with estimated damage of US\$ 210 billion; the Thailand flooding in 2011 with damages of US\$ 46.5 billion; the Christchurch (New Zealand) earthquake in 2011 with an estimated damage of US\$ 12 billion; the Australia flood in 2011 with an estimated damage US\$ 9.8 billion; and the Philippine floods in 2011 with an estimated damage of US\$ 4.5 billion.

The World Bank and DRM in the EAP. Since 1984, the World Bank Group's disaster related financing has doubled. Between fiscal years 2006 and 2012, the World Bank Group committed an estimated \$11.7 billion to projects related to disaster risk management (GFDRR, 2012). It follows a holistic approach to DRM, i.e., keep hazards away from people and keep people away from hazards.

The five strategic pillars of the Bank's DRM framework include (i) risk identification, risk assessments and hazard mapping; (ii) risk reduction through mainstreaming of DRM into sectors; (iii) disaster preparedness, including instituting early warning systems and contingency planning measures; (iv) financial resilience in ex-ante- and ex-post disaster planning; and (v) sustainable recovery and reconstruction by supporting governments in post disaster needs assessment and mobilizing resources for long-term recovery.

In EAP, the DRM portfolio amounts to US\$ 2.4 billion, broken down into US\$2.25 billion in lending and US\$140 million of trust funded activities (2013 figures). These resources support various programs and projects in various countries, such as:

- *Indonesia.* Metropolitan Jakarta implemented a decision support tool that uses open source data (InaSAFE) as part of their disaster preparedness program. The tool harnesses the participation of communities to generate risk information and in the process, strengthens community awareness and involvement.
- *Pacific Islands.* The Bank is supporting the implementation of a Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) that provided the individual governments in Pacific Islands to create risk maps and models as baseline information for assessment, planning and enabled design of a pilot catastrophe risk pooling and transfer program. The regional level analysis promotes economies of scale particularly in finding financial solutions to the increasing cost of disasters in this region.
- *Vietnam and Lao PDR.* As these countries are in the stage of developing capacities for risk identification and assessment, Bank support has focused on improving hazard monitoring, regional forecasting, early warning systems, and flood risk reduction.
- *Turkey.* The Istanbul Seismic Risk Mitigation and Emergency Preparedness (ISMEP) Project is the biggest structural retrofitting program implemented with the Bank support. Following the Marmara earthquake in 1999, the Turkish government has embarked on a robust program to reduce earthquake vulnerability in the country. It started a program of improving the regulatory environment for building construction and has gone a long ways since, with nearly 1000 public structures already strengthened or reconstructed.
- *China.* The Sichuan earthquake has prompted the Government to undertake a massive reconstruction program that is anchored on build better principles. The Government has used the disaster as an opportunity to build a better community that has complete access to infrastructure and social services (i.e., roads, water pipelines, sewers, bridges, health centers and hospitals) within a period of two years.
- *Philippines.* The Philippines is considered as one of the most disaster prone countries in the region. Recognizing this, the Philippine Government is

working with the Bank on areas to mitigate/reduce disaster impacts. In Metro Manila, a long-term master plan for flood risk management has been formulated to inform decisions and investments. The Government has also tapped the CAT-DDO to access quick liquidity for recovery and reconstruction. The World Bank is likewise assisting the Government in formulating a risk financing strategy and the preparation of a catastrophe risk model and assessment that would reduce its fiscal vulnerability. WB is also looking at the link of DRRM with climate change, since it gives a high level of uncertainty in DRM.

Disaster Risk Management Reflections on Progress and Challenges, delivered by Richard Andrews, PhD, Former Homeland Security Adviser (the United States)

Dr. Andrews' presentation focused on the global impact of disasters in the economy, with the intent of presenting some common principles of understanding in terms of crisis and disaster management. Lessons from the experience of United States during Hurricanes Katrina and Sandy and the Tohoku Earthquake in Japan were also presented.

Impact on global economy. Losses associated with natural and man-made disasters since 2000 are estimated to reach US\$2.5 trillion. The figure is 50% higher than previous decades and where 60% of losses are incurred in the EAP Region (UN Office for Disaster Risk Reduction). In 2012, economic losses were pegged at US\$186 billion; in Samoa, economic damages reached 19% of GDP in 2012, making it one of the hardest hit in the region.

Black swans vs. white whales. Crisis and disasters can be likened to 'black swans' and 'white whales.' Black swans symbolize something that do not exist but when it proved to exist (i.e. if the event happens), it would radically change the way people look at the world. White whales are known to exist but are extremely rare.

Conclusions about crisis management system.

- *Regardless of the institutional structure, a few common factors determine the outcome of the*

response and initial recovery from large-scale natural disasters.

- A nation's disaster management structure is only as robust as its "weakest link."
- Worst-case scenarios *do happen*.

Institutional context in the United States. Emergency management operations in the US are highly decentralized with local and state agencies and elected officials responsible for the public safety. Assistance from state/federal government such as the Federal Emergency Management Agency (FEMA), is requested only when needed. However, the general expectation is that the federal government determines the effectiveness of crisis management at the local level.

When Hurricane Katrina hit in 2005, it affected four states; caused 1,300 fatalities, with damages estimated at US\$96 billion. A number of failures in crisis management operations during Hurricane Katrina were identified, such as (i) awareness of the situation vis-à-vis the actual scenario was poor since the hurricane devastated communication facilities and majority of the local infrastructure; (ii) the local/state elected officials in Louisiana were deemed ineffective and quarrelsome; (iii) local and state organizations in Louisiana were essentially paralyzed; (iv) federal structure and officials were ineffective; and (v) the media filled the void in information about the actual scenario and provided images that sent a message that 'the system' had failed.

Key lessons. The experience of Hurricane Katrina prompted FEMA to plan for catastrophic events and ensure communication is available (using all means—such as social networks) and especially crucial in the first hours to set realistic expectations. Active coordination with private sector is important. For example, DHL (a logistics company) supported the moving of goods and services after Hurricane Katrina, and has agreed to be called on in future disasters. Experience from Hurricane Sandy suggests that softer (less expensive) crisis management measures (i.e., early closing of subways, tunnels, and bridges) that are focused on coordination, massive information sharing, and rapid decision-making are also important.

Dr. Andrews ended his presentation with the following points:

- Important to identify who shares the risk and the role of private sector in sharing this risk.
- Improving strategy is a combination of a short-term, medium-term and long-term measures for DRRM.
- Climate change is pushing the issue of risk management into the global arena.

Plenary Discussions

Disaster risk insurance

Disaster risk insurance is becoming a global issue. In developed countries, options on disaster risk financing (e.g., catastrophe bonds, catastrophe swap) are available and becoming more innovative. In these countries, such as the United States, reliance on domestic insurance providers is cautioned and a more robust international or regional perspective to risk financing is encouraged. However, in many developing countries, such as those in Asia, insurance penetration is a fundamental concern and should be a considered priority.

Collaboration with the private sector

Collaboration between the DRM community and the private sector usually happens when a certain level of catastrophic loss is experienced. Business continuity

planning inevitably concerns the private sector and the communities. In the United States, for example, the private sector provided logistical support to help in crisis management efforts during disasters.

On developing a template for recovery and reconstruction

There is no template nor is it necessary to have one for recovery and rehabilitation. An effective recovery program varies from country to country and it will likewise depend on the magnitude of a disaster. The disaster experience in the United States points to the importance of flexibility and the ability to plan schemes for building back better next time a disaster strikes.

Summary

This session emphasizes the importance of reviewing and updating DRM systems and practices, as in the case of Japan. In which case, emphasis should be put on prevention and reduction, as a more efficient way of building resilience.

Moreover, there is a need to work across sectors and segments of society, particularly with the private sector, which has the resources and capacities to contribute. Societies also need to prepare for 'black swans' and 'white whales'; the emphasis on 'Go fast, go big and go smart' refers to the importance of building and improving the logistical aspect of DRRM.

Proceedings and Presentation Summaries

Conference Closing Ceremonies and Agreements and Way Forward for ANMC21

Hon. Francis Tolentino, MMDA Chairman closed the Conference by recognizing the participants from ANMC21's member cities—Bangkok, Jakarta, Kuala Lumpur, Metropolitan Manila, Seoul, Singapore and Tokyo—who contributed to the success of the event.

Given this year's theme of Recovering from a Devastating Disaster and Moving Forward: A Major Asian City's Rehabilitation and Recovery Efforts, the Network continues to strengthen partnership among cities as it they deal with multiple hazards; exposure to and impacts of climate change; and complex emergencies in mega-cities. The conference sought to identify strategies to better protect cities and their constituencies and share disaster-related management practices in prevention, mitigation, response, recovery and rehabilitation. A recovery and rehabilitation approach that is quick and which harnesses a 'whole-of-government response' with communities and the private sector was emphasized. Technology and other tools are becoming more accessible to cities to enable them to reach out and inform the public of disaster risks. The formulation of business continuity plans with stakeholders and the establishment of financial recovery mechanisms have been identified as important measures to facilitate immediate recovery.

ANMC21 and its member cities agreed to develop their capacities to prepare, mitigate, respond to and recover from devastation through mutual assistance and willingness to share knowledge and resources moving forward. The member cities agree that they will continue to support each other in their various disaster training exchange programs to enhance human resource capabilities. Acknowledging that disasters do not recognize political boundaries, the member cities renewed their

commitment to strengthen existing partnerships among member-cities, through the improvement of their communications link to realize their common vision of making Asian cities disaster resilient.

Kuala Lumpur will host the next ANMC21 conference.

Highlights of Field Visit in Marikina

A study visit was jointly organized by MMDA and the City of Marikina for the participants and guests of the 11th Asian Crisis Management Conference.

The Vice Mayor of Marikina welcomed the Conference delegates and guests from Tokyo, Kuala Lumpur, Jakarta, Bangkok, Singapore, Seoul and Hanoi and the World Bank. The symbolic key to the city—was presented to the participants and guests, represented by Ms. Kryspin-Watson of the World Bank, as a testimony of the city's appreciation and a symbol of partnership in crisis and disaster management.

Participants and guests witnessed a tactical display of MMDA's rescue battalion, the K9 units, and volunteer rescuers. The Marikina City's Freedom Park served as the grounds to exhibit MMDA's and the City's rescue equipment.

Participants and guests were also able to observe an earthquake demonstration drill in Sta. Elena Public High school when the Marikina City Disaster Risk Reduction and Management Office lead the simultaneous citywide earthquake drill in all of the City's 31 public schools. The drill was based on an earthquake scenario cited in the Metro Manila Earthquake Impact Reduction Study (see box for the scenario that played out in Sta. Elena Public High School).

Earthquake Drill Scenario

While students are inside the classrooms, a 7.2M earthquake hit, prompting the school bell to alarm. Teachers instruct students to DUCK, COVER, and HOLD, while the bell rings still.

After the bell, students are asked to move out following an assigned route to the evacuation area calmly and orderly. The evacuation area managers and evacuation chairman will report to the incident commander of any injury or fatality. A parallel search and rescue is conducted. During the drill, a supposed injured student was brought to an ambulance, observing the protocol of reporting the said incident to the Disaster chairman or a barangay disaster risk reduction management office (or the City's 161 Rescue number).

The scenario continues at the Central Field Hospital in Cirma Street, Barangay Sto. Niño, near the City Health Center, which is about 600 meters away from Sta. Elena Highschool. Within ten minutes, an emergency ward was set-up with doctors and nurses attending to the victims. An incident command post was likewise set up to monitor the extent of human impact, adopting a predetermined color tagging to categorize extent of injuries on victims.



Earthquake Drill in Sta. Elena Public High School, Marikina City

Minutes of the Meeting

Regional Disaster Risk Management Community of Practice 11 July 2013

Chair: Richard Andrews, PhD

(Former Homeland Security Adviser)

Co-chair: Jolanta Kryspin-Watson, EAP DRM Coordinator,
The World Bank

Members of the CoP Panel:

Mr. Iwan Gunawan, The World Bank

Atty. Violeta-Seva, Makati City

Ms. Anne Arquiza, Australian Aid

Ms. Charlotte Benson, PhD, ADB

Mr. Taaki Kusakabe, JICA

The Community of Practice (CoP) meeting was held immediately after the close of the 11th Asian Crisis Management Conference. It is held for development partners and practitioners involved in crisis and disaster management in the EAP region. This year's CoP meeting intends to supplement the Conference sessions by bringing in the perspective of various development partners on crisis and disaster risk reduction management. Participants of the ANMC21 member countries also participated in this meeting.

Decision support tools and community engagement for flood emergency management and recovery in Jakarta (Iwan Gunawan, PhD, The World Bank-Jakarta Office).

Dr. Gunawan discussed WB's assistance to Jakarta to develop a geospatial tool for DRM decision-making, which combines open source technology and community participation in risk mapping. The tool is essential for disaster preparedness, especially for the multiple hazards faced by the City, *i.e.*, inland and coastal flooding, land subsidence, sea level rise, and earthquake.

Issues on data, procedures, capacities and resource availability impede response and recovery actions in Jakarta. Through the InaSAFE program, hazard scenarios were established that informed decisions and actions to be made by the government. It was able to leverage scientific data with the information that come from communities. Communities (community leaders, students and local officials) were mobilized through participatory mapping and validation exercises. The Government of Jakarta has recently issued a policy to scale up the use of InaSAFE throughout the country. The availability of reliable and accurate data to inform DRM actions underpins the success of InaSAFE. It points to how a good data system can facilitate prevention, effective response and rapid recovery.

ADB support to DRM (Charlotte Benson, PhD, Asian Development Bank). Dr. Benson presented ADB's Integrated Disaster Risk Management (IDRM) framework composed of the following pillars: disaster financing, disaster risk reduction, and climate change adaptation. Within ADB, a DRM operational plan is being crafted, to include mainstreaming of DRM in other sectoral plans (*i.e.*, water, urban, and environment).

ADB's portfolio in the region include disaster risk reduction programs in Nepal, Bangladesh, China, and India, among others; technical assistance for the Pacific islands on integrating climate and disaster risk information in urban development and infrastructure planning; and regional advisory assistance in Philippines and Vietnam to establish risk profiles for pilot cities and determine risk financing requirements. There are also knowledge products available on integrating DRM in urban management and climate change adaptation and support for governments in capacity building and partnership building with the private sector.

Australian Aid's strategy to urban resilience (Ms. Anne Orquiza, Australian Agency for International Development). The new Australian Aid country program strategy in the Philippines aims to strengthen basic service for the poor and to reduce vulnerability from conflict, climate change, and natural disasters. Ms. Orquiza emphasized that Australian Aid follows an integrated approach to urban resilience as embodied in its program for Metro Manila, wherein it works with the World Bank in supporting the formulation of a Metro Manila Green Print for Growth and the Metro Manila Flood Risk Master Plan.

Australian Aid also supports training and capacity building for the Philippine institutions such as the development of several open databases (*e.g.*, REDAS, CRISP, CLIMEX) for risk assessment. Australian Aid is working with the Government—represented by the NDRRMC-Collective Strengthening of Community Awareness of Natural Disasters (CSCAND)—in developing hazard and risk maps that would be shared through consultations and roadshows.

Australian Aid is also focusing on a human-centered approach to DRM, particularly for resettlement of communities living in danger zones, through its Building the Resilience and Awareness of Metro Manila Communities to Natural Disaster and Climate Change Impacts (BRACE) Program which will be leveraged with a Php 50 billion government fund for resettlement.

City-to-City sharing for DRRM and Urban Resilience (Atty. Violeta Seva, Makati City). Atty. Seva shared Makati's City-to-City sharing initiative with Katmandu (Nepal) and Quito (Equador), under the World Bank's Global Facility for Disaster Reduction and Recovery (WB-GFDRR) South-to-South cooperation program. The cooperation program's objective includes knowledge dissemination, adaptation and innovation and technical cooperation, resource sharing and capacity building.

The City-to-City program facilitated inter-city learning on themes such as land use planning, disaster risk information, local and community planning through a practical and action oriented approach, which are common concerns for the participating cities. The program produced knowledge products, models on urban resilience

(*i.e.*, how to develop a city profile, a GIS atlas, and emergency management among others), and documentation of best practices from the participating cities. The sharing initiative earned an award from CITYNET (a regional network of urban stakeholders in the Asia-Pacific region) in 2012 for its valuable contribution on urban regeneration, enforcement of building code, and developing city champions for DRRM.

JICA's portfolio in DRM for the Philippines (Mr. Takaaki Kusakabe, *Japan International Cooperation Agency*). Mr. Kusakabe presented JICA's strategy in supporting the Philippines' DRM program that seeks to integrate DRM across sectors (*i.e.*, power, road, transport, industry, water and sanitation, environment, and agriculture). JICA's program in the Philippines includes: (i) measures to raise dike roads against lahar flows and flooding in Guagua, Pampanga (Pinatubo Hazard Urgent Mitigation Project-Phase 3); (ii) study on drainage improvement in Metro Manila (which will include information, education and communication campaign on solid waste management); (iii) incorporating disaster risk reduction principles in transport planning; (iv) support to ASEAN in business continuity planning, especially in the industrial areas in the Southern part of Metro Manila; (v) support to DRRM Capacity Enhancement Project (with the Office of Civil Defense until 2015); and (vi) the integration of Local DRRM Plans in the local development plans.

Discussions from the meeting. Some of the issues raised relate to mainstreaming and integrating DRM at the local level and the local government's capacity for DRM. Experts were asked to share their insights on the challenges and best practices of integrating disaster risk reduction/climate change adaptation into several urban themes such as urban housing, water and sanitation.

Some of the responses from experts include the incorporation of risk management of climate change projection in the design of water and sanitation investment, and that indeed challenges persist in terms of integration. ADB shared that it is introducing climate proofing parameters in certain sector guidelines, such as those in flood infrastructure projects. The use of community driven development (CDD) approach in project preparation for

cities to integrate climate adaptation was also cited as best practice.

Challenges in integrating disaster plans into the local development plans were identified such as gaps in capacities of local governments and lack of access to hazard and other risk information. Australian Aid assured the audience that it will plan activities to disseminate the results of the risk mapping for the Greater Metro Manila through the Government's Geoportal. JICA underscored the importance of capacity building in all its infrastructure programs.

The Bureau of Soils of Water Management of the Philippine's Department of Agriculture shared its efforts to digitize all their maps for land management (*i.e.*, vulnerability and crop suitability maps) to enable public access to these maps especially for a natural resource approach to DRM. The website will be launched in August and the maps will be made available in several file formats (*i.e.*, pdf, shape, jpeg). The project is being supported by the World Bank and financed by GFDRR grant.

Another important point raised is the need to insure and properly identify assets in the Philippines. Constraints in knowledge and capacities may undermine the effectiveness of instruments, such as those offered by social and

micro insurance institutions. The Government Service Insurance System, a social insurance institution, for example, may be burdened in insuring all government assets. Micro-insurance institutions on the other hand may be unable to shoulder insurance cost for DRRM. As a response, the World Bank is currently working on a catastrophe risk modeling study focusing on public assets to inform decisions on appropriate risk finance instruments that could be considered by Government.

Summary and Closing. This year's CoP meeting focused on the promotion of resilience, particularly among cities in the EAP region. A number of challenges in DRM were identified such as (i) bridging the gap between local needs versus national plans; (ii) challenges between climate change adaptation-urban development-disaster risk management; (iii) timely updating of hazard information to capture disasters that happen locally; and the (iv) need for partnerships in using and in making scientific information available for local use.

This year's CoP also presents the non-structural measures that relate to knowledge sharing, budgeting and financing for DRRM. The planned CoP meeting in October next year will focus on structural measures of DRRM.

Annex 1 Conference Participants

ANMC21 Representatives

	Name	Designation	Organization/Country
1	Hon. Francis N. Tolentino	Chairman	Metropolitan Manila Development Authority (MMDA), Philippines
2	Mr. Yasuki Miyazaki	Deputy Director General	Crisis Management Tokyo Metropolitan Government, Japan
3	Ms. Phimlaphatr Buajud	Officer	Bangkok Fire and Rescue Department, Thailand
4	Mr. Andi Koswara		Jakarta Fire Department & Disaster Management, Indonesia
5	Mr. Masahiko Seki	Fire Academy Director	Tokyo Fire Department, Japan
6	Col. Chin Lai Fong	Logistics Department Director	Singapore Civil Defense Force
5	Col. Abdul Wahab Bin Rahim	Commandant	Civil Defense Training Academy, Malaysia
7	Mr. Woong Ki Lee	Assistant Manager Fire Department	Seoul, South Korea
8	Mr. Hajime Karasawa	Superintendent	Disaster Division Security Bureau, Tokyo Police Department, Japan
9	Mr. Nagaoka Makoto	Emergency Intelligence & Disaster Prevention Division Director-in-Charge	Bureau of General Affairs, Tokyo Metropolitan Government, Japan

Philippine National Government

	Name	Designation	Organization
1	Col. James B. Joven (GSC) PA	Acting Commander	Joint Task Force – NCR, Armed Forces of the Philippines
2	CPT. Alex Nikolai F. Cabales	Operations Officer	Joint Task Force – NCR, AFP
3	Major. Joseph Alain U. Ibuna	Chief, Plans and Program Branch	Office of the Chief Surgeon, Air Force
4	Supt. Jaime D. Ramirez	Operations Chief	Bureau of Fire Protection – NCR
5	Capt. Johnny G. Yu, PCGA	National Chairman	Civil Defense Action Group Inc.
6	Ms. Honey Lovella L. Alvarez	Executive Coordinator/ Secretariat Head	Civil Defense Action Group Inc.
7	Mr. Dick Echavez	Director III	Civil Service Commission Field Office – Department of Science and Technology
8	Capt. Rolando Lazor N. Punzalan, PCG	Deputy Commander	Coastguard District – NCR

(continued on next page)

Philippine National Government *(continued)*

	Name	Designation	Organization
9	Ms. Carmelita O. Antasuda	OIC, Regional Director	Commission on Audit – NCR
10	Mr. Erwin M. Beltran	EPS I	Commission on Higher Education – NCR
11	Ms. Bellaflor M. Coronado	ES5	Commission on Higher Education
12	Dr. Bellaflor M. Coronado	Education Supervisor II	Commission on Higher Education – NCR
13	Mr. Erwin M. Beltran	Education Program Specialist	Commission on Higher Education – NCR
14	Ms. Ruby R. Esteban	Regional Director	Department of Budget and Management – NCR
15	Ms. Katherine B. Castro	Budget and Management Specialist I	Department of Budget and Management
16	Mrs. Genia Santos	Education Program Supervisor II, Chairman RDRRMC	Department of Education- NCR
17	Mr. Rogelio Amabilis	President, REDIRA	Department of Education – NCR
18	Mr. Andrito C. Mendoza	Development Management Office V	Department of Finance – NCR, Bureau of Local Government Finance
19	Ms. Maria Lourdes L. Gustin	Assistant Regional Director	Department of Interior and Local Government – NCR
20	Mr. Reynaldo Tagudando	Regional Director	Department of Public Works and Highways – NCR
21	Mr. Reynaldo G. Rosario		Department of Public Works and Highways – NCR
22	Mr. Bienvenido Barbosa	OIC- Disaster Response Section	Department of Social Welfare and Development – NCR
23	CDR. Mitzie S. Campo	Executive Assistant for Project Implementation and Special Concern	Department of Transportation and Communication
24	Dr. Jose Mari C. Castro	Medical Specialist III	Health Emergency Management Staff – NCR
25	Mr. Leonardo A. Espina	Regional Director	National Capital Region Police Office
26	PCSupt. Christopher A. Laxa	Deputy Regional Director for Operations	National Capital Region Police Office
27	PCSupt. Marcelo C. Morales	Regional Operations Division Chief	National Capital Region Police Office
28	Mr. Joseph Y. Dela Cruz	Regional Director	National Food Authority- NCR
29	Mr. Edgardo V. Cabarios	Director II	National Telecommunication Commission
30	Comm. Gamaliel A. Cordoba	Commissioner	National Telecommunications Commission
31	Hon. Eduardo D. Del Rosario	Undersecretary and Executive Director	Office of the Civil Defense Administrator / NDRRMC

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Philippine National Government *(continued)*

	Name	Designation	Organization
32	Mr. Edgardo J. Ollet	Regional Director	Office of Civil Defense – (NCR)
33	LTC. Norme V. Omabtang	Military Assistant	Office of Civil Defense
34	Mr. Kenneth A. Tutaan	Staff OCD- NCR	Office of Civil Defense
35	Dir. Rdgardo J. Ollet	Regional Director/ DND	Office of Civil Defense
36	Director Ana Caneda		Office of Civil Defense – Region 10
37	Mr. Robert Z. Quinto	Senior Weather Specialist	Philippine Atmospheric Geophysical and Astronomical Services Administration
38	CAPT. Jerry A. Nibre	OPNS Officer	Philippine Coast Guard
39	Ms. Riza J. Baldoria	Regional Director	Philippine Information Agency – NCR
40	Ms. Jimmyley E. Guzman	Information Officer III	Philippine Information Agency – NCR
41	Mr. Renato U. Solidum, Jr.	Director	Philippine Institute of Volcanology and Seismology
42	Mr. Ramon J. Santiago	Director -Flood Control Information Center	MMDA
43	Mr. Francisco S. Manalo	OIC, TDO	MMDA
44	Ms. Lydia P. Domingo	Director III	MMDA
45	Ms. Delia H. Caganap	Director II	MMDA
46	Mr. Amante P. Salvador	Director IV	MMDA
47	Mr. Alex T. Umagat	Director IV	MMDA
48	Mr. Manny Valdez	LLSOIV	MMDA-CS
49	Ms. Ruby R. Baltazar	HRMO V	MMDA-SDD
50	POD. Michael M. Gison	PO IV	MMDA – OALP
51	Dir. Neomie T. Recio	Director III	MMDA – TEC
52	Engr. Emilio M. Llavon	Engr. III	MMDA – TEC
53	Ms. Elsie I. Encarnacion	Director III	MMDA – MISS
54	Mr. Edward C. Gonzales	Head	MMDA-TOD – REG
55	Dr. Ma. Loida L. Alzona	Division Chief	MMDA-HPSEPO – PPDMD
56	Dr. Annabelle R. Ombina	MO III	MMDA – Medical Clinic
57	Mr. Ed F. Fainsan	ALAFA	MMDA-OAGMFA
58	Dr. Mario G. Taylor	Tech Asst.	MMDA-ODC
59	Mr. Ed L. Lara	Head	MMDA-SCOG
60	Atty. Rochelle T. Macapili	Director II	MMDA – Legal
61	Atty. Cesar O. Ona Jr.	Division Chief	MMDA-Legal
62	Mr. Francisco R. Pesino Jr	Engr. IV	MMDA-TEC
63	Ms. Betty M. Gendeve	Chief Health Program Officer	MMDA-HSSCAD – HPSEPO
64	Dir. Rod C. Tucson	Director III	MMDA-SWAMO

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Philippine National Government *(continued)*

	Name	Designation	Organization
65	Atty. Emerson S. Carlos	Assistant General for Operations	MMDA-OAGMO
66	Engr. Carolyn M. Dechino	Engineer II	MMDA-TEC
67	Ms. Jen C. Alvarez	LLSUV	MMDA-CS

Philippine Local Government Units

	Name	Designation	Organization
1	Engr. Oliver R. Hernandez	City Administrator	City of Caloocan
2	Atty. Violeta S. Seva	Senior Advisor to the Mayor	City of Makati
3	Ms. Liza Velle B. Ramos	Project Development Officer III	City of Makati
4	Mr. Hector C. Reyes	OIC- Makati DRRM Operations Center	City of Makati
5	Mr. Roderick D. Tongol	OIC- DRRMO/PSTMO	City of Malabon
6	Col. Benjamin A. Ladra	DRRM Officer, MDRRMO	City of Mandaluyong
7	Ms. Caroline Viray	CDRRMC	City of Mandaluyong
8	Hon. Fabian Cadiz	Vice Mayor	City of Marikina
9	Ms. Kristine Roxas	DRRMO	City of Marikina
10	Mr. Paul Ross Bryans Felix	DRRMO	City of Navotas
11	Mr. Elpidio Jr. S. Garcia	OIC- Flood Control	City of Navotas
12	Mr. Rommel J. Antinero	OIC, Pasig Rescue Team	City of Pasig
13	Mr. Ritchie Van Angeles	Disaster Officer, DRRMO, PC3	City of Pasig
14	Analyn A. Mercado	OIC, MEDDRMCC	City of Muntinlupa
15	Ronaldo B. Suitado	MEDDRMCC/Rescue	City of Muntinlupa
16	Mr. Nathaniel Rabonza	Chief, CDRRMO	City of San Juan
17	Mr. Adrienne Paul Atienza	Head, Operations and Warming, CDRRMO	City of San Juan
18	Mr. Bryant Meryll M. Ruiz	Head, Administration and Training	City of San Juan
19	Mr. Nathaniel N. Rabonza	CDRRMO	San Juan CDRRMC
20	Mr. Bryant Q. Wong	Admin. CDRRMO	San Juan CDRRMC
21	Mr. Adrienne Paul A. Atienza	OWG, CDRRMO	San Juan CDRRMC
22	Ms. Jurita Olvido		City of Taguig
23	Ms. Alma Dogue		City of Taguig
24	Ms. Ma. Isabel Vito		City of Taguig
25	Ms. Daisy Bulacan		City of Taguig
26	Ms. Raquel S. Galicia		City of Taguig
27	Mr. Noel C. Lansang	DRRMO	Quezon City
28	Hon. Herbert Bautista	City Mayor	Quezon City
29	Mr. Sonny M. Morales	DRRMO	Quezon City
30	Mr. Arnaldo F. Antonio	OIC- LDRRMO	City of Valenzuela

Private Sector and Non-Governmental Organizations

	Name	Designation	Organization
1	Dr. Fouad Bendimerad	Chairman, Earthquake and Megacities Initiative	Earthquake and Megacities Initiative
2	Mr. Adam C. Abinales		Philippine Institute of Civil Engineers
3	Engr. Gwenellyn C. Samonte	Environment, Health and Safety Manager	M+W High Tech Project Phils, Inc.
4	Ms. Hygeia Dulnuan	Owner	Private Company
5	Engr. Gwendalyn C. Samonte	Environment, Health & Safety Manager	M+W High Tech Project
6	Engr. Virgilio Columa	President Elect	Association of Structural Engineers of the Philippines, Inc.
7	Mr. Adam Abinales	Chairman, EQRP Committee	Philippine Institute of Civil Engineers

Development Partners

	Name	Designation	Organization
1	Mr. Abhas K. Jha	Sector Manager, East Asia & Pacific – Transport, Urban & DRM	World Bank
2	Ms. Jolanta. Kryspin-Watson	Regional DRM Coordinator	World Bank
3	Dr. Richard Andrews	Consultant	World Bank
4	Ms. Mari Anne Trillana	SD Unit	World Bank
5	Ms. Laila Soliven	SD Unit	World Bank
6	Mr. Iwan Gumawan	Sr. DRM Coordinator	World Bank
7	Ms. Ruby Manguizong	Consultant	World Bank
8	Ms. Aby Albano	Consultant	World Bank
9	Ms. Shiela M. Dela Torre	Consultant	World Bank
10	Ms. Cathy Vidar	DRM Specialist	World Bank
11	Mrs. Melissa B. Morales	Program Officer	Australian Aid
12	Ms. Olga C. Asaña	Local Expert	KfW
13	Dr. Charlotte Benson	DRM Specialist	Asian Development Bank
14	Mr. David Villeneuve	CDIP	GIZ – CDIA
15	Mr. Broit You	Officer	AFD
16	Ms. Anne Orquiza	Portfolio Manager	Australian Aid
17	Mr. Takaaki Kusakabe	DRM Expert	JICA

Annex 2 Conference Agenda

11th Asian Crisis Management Conference

*Recovering from a Devastating Disaster and Moving Forward:
A Major Asian City's Rehabilitation and Recovery Efforts*

Metro Manila, the Philippines

10–11 July 2013

Day 1: 10 July 2013

Asian Crisis Management Conference

Ruby B, Crowne Plaza, Quezon City

8:30–9:00am Registration

9:00–10:00am **Opening Ceremonies**
Welcome Address

Hon. Francis N. Tolentino

Chairman, Metropolitan Manila Development Authority

Keynote Speech

Hon. Eduardo D. Del Rosario

Undersecretary, Office of the Civil Defense Administrator and
Executive Director, NDRRMC

Congratulatory Address

Mr. Yasuki Miyazaki

Deputy Director General for Crisis Management
Tokyo Metropolitan Government

Press Conference/ Photo Opportunity

10:00–10:15am Break

10:15–12:15pm **Session 1: Presentation from Member Cities**

Moderator: Atty. Emerson Carlos, Assistant General Manager for Operations, MMDA

Marikina City Disaster Management Best Practices

Hon. Fabian Cadiz, Vice Mayor, Marikina City

Malaysia Civil Defense in the Incident of Lahad Datu

Col. Abdul Wahab Bin Rahim, Commandant, Civil Defense Training Academy

Bangkok Flood Management

Ms. Phimlaphat Buajud, Bangkok Fire and Rescue Department

Disaster Management of Flood and Earthquake in the Province of DKI Jakarta

Mr. Andi Koswara, Jakarta Fire Department & Disaster Management

Measures Against the Upcoming Earthquake Directly Striking Tokyo

Mr. Masahiko Seki, Fire Academy Director, Tokyo Fire Department

Open Forum

Summing up: Atty. Emerson Carlos

11th Asian Crisis Management Conference

Recovering from a Devastating Disaster and Moving Forward:

A Major Asian City's Rehabilitation and Recovery Efforts

Metro Manila, the Philippines

10–11 July 2013

Day 1: 10 July 2013 Asian Crisis Management Conference

(continued)

12:15–1:15pm *Lunch (Fab Restaurant)*

1:15–2:45pm **Session 2: Presentation from Member Cities**

Moderator: Mr. Alex Umagat, Camp Commander East Sector, Metro Yakal, MMDA

People's Resiliency and Bayanihan: Key to Early Recovery of Metro Manila After the Storm

Dir. Ramon Santiago, Flood Control Information Center Head, MMDA

Strategic Approaches on Crisis Management in Singapore

Col. Chin Lai Fong, Logistics Department Director, Singapore Civil Defense Force

Seoul Fire Complex

Mr. Woong Ki Lee, Assistant Manager

Fire Department, Seoul Korea

Mutual Assistance for Disaster Operations Beyond the Prefectural Police Boundaries

Mr. Hajime Karasawa, Superintendent, Disaster Division Security Bureau, Tokyo Police Department

Open Forum

Summing up: Dir. Alex Umagat

2:45–3:00pm *Break*

3:00–5:00pm **Session 3: Presentation from Tokyo and WB**

Moderator: Abhas K. Jha, Sector Manager, East Asia & Pacific—Transport, Urban & DRM, The World Bank

Improving Tokyo's Disaster Prevention Capabilities

Mr. Nagaoka Makoto, Emergency Intelligence & Disaster Prevention Division Director-in-Charge, Bureau of General Affairs, Tokyo Metropolitan Government

Strong, Safe and Resilient: The Role of Preparedness, Response and Recovery in DRM

Ms. Jolanta Kryspin-Watson, Regional DRM Coordinator, The World Bank

Disaster Risk Management: Reflections on Progress & Challenges

Dr. Richard Andrews, Former Presidential Homeland Security Advisor (United States)

Open Forum

Summing up: Abhas K. Jha

6:00 onwards

Welcome Dinner/Fellowship Night

Fab Restaurant, Crowne Plaza Manila Galleria

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Day 2: 11 July 2013

Asian Crisis Management Conference

Sapphire B, Crowne Plaza, Quezon City

- | | |
|----------------|---|
| 8:30–9:30am | Closing Ceremonies of the ANMC Event
Conclusion and selection of next host city <ul style="list-style-type: none"> • Annual report of Secretariat (Tokyo) • Selection of the next Host City • Chairperson's Summary |
| 9:30–9:45am | Preparation for the Study Trip |
| 9:45am–12:30pm | Study Trip in Marikina City <ul style="list-style-type: none"> • Rescue Battalion Drills and Static Display (Freedom Park) • Earthquake Drills (Amang Rodriguez Hospital) |
| 12:30–1:30pm | <i>Lunch (Crowne Plaza)</i> |
| 1:30–3:00pm | Metropolitan/Urban Disaster Response, Recovery and Mitigation:
Discussion of ANMC Member City Presentations Chair:
<i>Dr. Richard Andrews, Former Presidential Homeland Security Advisor (the United States)</i> |
| 3:00–3:45pm | Regional Good Practice in Metropolitan and Urban Disaster and Emergency Management <ul style="list-style-type: none"> • Using Decision Support Tools and Community Engagement for Flood Emergency Management and Recovery in Jakarta
 <i>Mr. Iwan Gunawan, The World Bank</i> • Use of a Customized Philippines PDNA Approach
 <i>Director Ana Caneda, Office of Civil Defense—Region 10</i> |
| 3:45–4:00pm | <i>Break</i> |
| 4:00–5:30pm | Regional Good Practice in Metropolitan and Urban Disaster and Emergency Management <ul style="list-style-type: none"> • Ms. Anne Orquiza, Australian Aid • Ms. Charlotte Benson, ADB • Mr. Takaaki Kusakabe, JICA |

