



Institutionalizing Resilience of Communities and Nation: the Philippines and Japan Experiences

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I. Acknowledgement

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Asian Disaster Reduction Center for the most valuable opportunity to learn about Disaster Risk Reduction (DRR) in Japan. ADRC has made possible that learning through experience is learning for a lifetime...

Office of Civil Defense-Department of National Defense (OCD-DND) whose relentless pursuit for excellence in disaster risk reduction and management has prompted me to be in Japan as a visiting researcher...

Co-Visiting Researchers from Thailand, India and Indonesia for the fun and frenzy exploration of Japan for three and a half months...

Family and friends for the love, support and inspiration...

II. Background and Significance of the Study

The communities are always at the forefront of every disaster or emergency. If they will be the backbone of disaster prevention and mitigation as well as preparedness measures, they will deliver their respective communities to resilience and contribute to the nation's pursuit for sustainable development. Thus, there is a need to empower the communities to be able to cope and manage every disaster that would come along their way and to be able to continuously build resilience. In this aspect, the government plays a very vital role in leading the communities towards resilience.

In the Philippines, there is recently an enabling law to be able to achieve this but so much efforts with long-term positive impacts have to be done yet and on-going investments on community-based disaster risk reduction (CBDRRM) must be continued.

The Great-Hansin Awaji Earthquake in 1995 was the turning point of resilience for the Japanese community but the lessons learned from the Great East Japan Earthquake prompted them to continuously and strongly pursue CBDRRM. It is in this light that this paper will delve into the different good practices in CBDRRM between the Philippines and Japan experiences.

As defined in the Republic Act 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010, "Community-Based Disaster Risk Reduction and Management" or "CBDRRM" is a process of disaster risk **reduction and management in which at risk communities are** actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities, and where the people are at the heart of decision-making and implementation of disaster risk reduction and management activities.

As such, this study will try to explore the participation of the community which includes the local government units (LGUs) specifically the local disaster risk reduction and management councils (LDRRMCs) from the city and municipal levels who have a direct coordination with the barangays or the grassroots level together with the people themselves and the rest of the key players at the local levels, the schools, the churches, private organizations, business sectors found in the area, health sectors and the rest of the elements in the area, with the steering leadership of the national government as a whole.

Furthermore, this study encompasses the following entities that make up a community: the people themselves: men, women, children, the elderly, persons with disabilities, the government, the non-government, the business sector, private sector, all who are actors in a community. The local government units (LGUs) which may be a city, a municipality and or a barangay. The local Disaster Risk Reduction and Management Councils (LDRRMCs) as a leader in the implementation of disaster risk reduction and management programs. The civil society organizations (CSOs) or non-state actors whose aims are neither to generate profits nor to seek governing power. CSOs that unite people to advance shared goals and interests. They have a presence in public life, expressing the values and interests of their members or others and are based on ethical, cultural, scientific, religious, or philanthropic considerations. It also includes non-government organizations (NGOs), professional associations, foundations, independent research institutes, other community-based organizations (CBOs), faith-based organizations, people's organizations, social movements, and labor unions who are continuously initiating and investing in disaster risk reduction as a strategy for sustainable development.

III. Delimitation of the Study

This study is limited only to the institutionalization of the disaster risk reduction and management programs, projects and activities in the Philippines and Japan contexts and how such process has empowered the communities to become more resilient against any disaster or emergency.

The first part of the study will focus on the Philippine experience banking on the new law entitled Republic Act 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010 which transforms the country's disaster risk reduction and management system into a more proactive stance. This paper will try to delve on some of the examples of the good practices in DRRM by a number of local disaster risk reduction and management councils and non-government organizations as well as volunteer groups in the Philippines which play a significant role in creating a disaster resilient communities and leading them towards the path of sustainable development.

The second part of the study will give an extensive discussion of creating a culture of safety and resilience in Japan starting from the laws and guidelines issued by the Central Government, major roles that the government play in promoting and implementing these laws, the corporate social responsibility and commitment to disaster risk reduction of the business communities and the participation and cooperation of the people themselves. The discussion is limited only to the accounts of actual experiences and learning that the author has encountered in the various study tours all over Japan, seminars and conferences with local and international experts, and personal readings of reference materials provided during the term under the Visiting Researcher Program of the Asian Disaster Reduction Center on January 15 to April 22, 2013.

Through the ADRC Visiting Researcher Program, the lessons learned from the Great Hanshin Awaji Earthquake and the Great East Japan Earthquake as well as the good practices in disaster risk reduction being undertaken by the government and non-government entities in Japan would be very useful for the author in carrying out her duties and responsibilities as Civil Defense Officer and DRR practitioner in the Philippines given the implementation of the provisions of Republic Act 10121.

The Filipino people are our strongest competitive advantage, which is why we continue to invest heavily in them. –

His Excellency, President Benigno C. Aquino, February 5, 2013

IV. Institutionalizing DRRM in the Philippines

The earliest records of disaster management for the Philippines is traced back before the so-called pre-colonial era as reflected in the earliest religious beliefs of the inhabitants and in their ways of coping with natural phenomena. It is said that early disaster preparedness capabilities of the Filipinos can be inferred from the artifacts dated as early as 2000 BCE in the province of Ifugao wherein the stone wall outlines are traces of an ancient fortress that also provided protection from natural disasters¹. The geographical location and geotectonic setting of the country makes it prone to all types of natural hazards.

The evolution of the Philippine disaster management had been influenced by the various natural and human-induced disasters that severely impacted on the lives and properties of the Filipino people.

A. Republic Act 10121

On 27 May 2010, Republic Act 10121 or the legal basis for the paradigm shift from just disaster preparedness and response to disaster risk reduction and management in the Philippines was enacted. Republic Act 10121 is entitled “An Act Strengthening the Philippine Disaster Risk Reduction and Management System, Providing for the National Disaster Risk Reduction and Management Framework and Institutionalizing the National Disaster Risk Reduction and Management Plan, Appropriating Funds Therefore and for Other Purposes” otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010.

The law is the revolutionary instrument in institutionalizing disaster risk reduction and management in the Philippines from the national level down to the grassroots level or the barangay level together with participation and cooperation of private sector, non-government organizations, volunteer groups and the communities themselves.

¹ “The Philippine Disaster Management Story” .Asian Disaster Preparedness Center (ADPC), October 2001,

The law stipulates the policy of the State to uphold people's constitutional rights to life and property by addressing the root causes of vulnerabilities to disasters, strengthening the country's capacity for disaster risk reduction and management, and building the resilience of local communities to disasters including climate change impacts.

Salient Features of RA 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010

RA 10121 provides for the development of policies and plans and the implementation of actions and measures pertaining to all aspects of disaster risk reduction and management, including good governance, risk assessment and early warning, knowledge building and awareness raising, reducing underlying risk factors, and preparedness for effective response and early recovery.

Section 5 provides for the organization of the National Disaster Risk Reduction and Management Council. The former National Disaster Coordinating Council or NDCC is known as the National Disaster Risk Reduction and Management Council, hereinafter referred to as the NDRRMC or the National Council. The National Council shall be headed by the Secretary of the Department of National Defense (DND) as Chairperson with the Secretary of the Department of the Interior and Local Government (DILG) as Vice Chairperson for Disaster Preparedness, the Secretary of the Department of Social Welfare and Development (DSWD) as Vice Chairperson for Disaster Response, the Secretary of the Department of Science and Technology (DOST) as Vice Chairperson for Disaster Prevention and Mitigation, and the Director General of the National Economic and Development Authority (NEDA) as Vice Chairperson for Disaster Rehabilitation and Recovery. The members have increased to 38 from 18 member agencies.

The NDRRMC or the National Council plays a very critical role in shaping the country's disaster risk reduction and management system as a strategy for sustainable development and poverty reduction in the Philippines. The National Council is empowered with policy-making, coordination, integration, supervision, monitoring and evaluation functions which will be carried out through the seventeen (17) main responsibilities stipulated in the law. The NDRRMC Chairperson is authorized, as provided for in Section 7 of the law, to call upon other instrumentalities or entities of the government, including the reserve forces, and non government organizations for assistance in terms of the use of their facilities and

resources for the protection and preservation of life and properties in the whole range of disaster risk reduction and management.

The Office of Civil Defense, on the other hand, plays a strategic role, in the implementation of disaster risk reduction and management programs, projects and activities in the Philippines. The OCD is mandated to have the primary mission of administering a comprehensive national civil defense and disaster risk reduction and management program by providing leadership in the continuous development of strategic and systematic approaches as well as measures to reduce the vulnerabilities and risks to hazards and manage the consequences of disasters. The Administrator of the OCD serves as the Executive Director of the National Council. The National Council utilizes the services and facilities of OCD as secretariat of the National Council.

The OCD has nine powers and functions under the law. These powers and functions play a critical role in creating an enabling environment for the institutionalization of disaster risk reduction and management in the Philippines down to the community-level. Among these nine powers and functions, I would like to highlight the establishment of a Disaster Risk reduction and Management Training Institutes in suitable locations for the Philippines, in order to train public and private individuals in DRRM. Presently, the OCD is taking concrete steps for the establishment of the Training Institute, particularly in Luzon first, in collaboration and support with concerned stakeholders. The Institute shall consolidate and prepare training materials and publications, books and manuals to assist DRRM workers in the planning and implementation of DRRM programs and projects. Part of the functions of the Institute are to conduct research programs to upgrade knowledge and skills and document best practices on DRRM and a periodic awareness and education programs to accommodate new elective officials and members of LDRRMCs. The latter is to particularly address the constant change in political leadership brought about by regular elections in the Philippines and to continuously educate the new leaders about DRRM.

The next function which I would like to highlight is for OCD to create an enabling environment for substantial and sustainable participation of CSOs, private groups, volunteers and communities, and recognize their contributions in the government's DRR efforts. This paper will discuss the institutionalization of *Gawad KALASAG*, and other recognitions which have evolved such as the *Seal of Disaster Preparedness*, and *Bakas Parangal*.

Section 10 of RA 10121 provides for the organization of the Disaster Risk Reduction and Management Council (RDRRMC) at the Regional Level which shall coordinate, integrate, supervise, and evaluate the activities of the LDRRMCs. The RDRRMC is the responsible body to ensure disaster sensitive regional development plans, and in case of emergencies shall convene the different regional line agencies and concerned institutions and authorities. The Chairperson of the RDRRMC is the designated Civil Defense Officer and in the case of the Autonomous Region of Muslim Mindanao (ARMM), the Chairperson is the ARMM Governor. A Regional Disaster Risk Reduction and Management Center shall be established by RDRRMC as an operating facility on a 24-hour basis.

One of the breakthroughs of this law is the organization of Local Disaster Risk Reduction and Management Council and the establishment of a Local Disaster Risk Reduction and Management Office at the local levels. The previous local Disaster Coordinating Councils (DCCs) are now known as local DRRMCs and the Barangay Disaster Risk Reduction and Management functions shall be assumed by the Barangay Development Council (BDC). A local DRRM Office is mandated to be established permanently in every Province, City, Municipality and a BDRRM Committee in every Barangay to address the constant change in political leadership of the local government unit after every elections. The permanent DRRM Office with permanent staff dedicated to DRRM programs and projects will pave the way for the institutionalization of risk reduction and management programs in all local governments in the Philippines even if there are changes in political leadership after every election. The LDRRM Offices will have permanent staff dedicated for administration and training, research and planning and operations and warning. The LDRRMOs and the BDRRMCs shall organize, train and directly supervise the local emergency response teams and the Accredited Community Defense Volunteers (ACDVs). Aside from these, the LDRRMCs have 25 overpowering tasks of delivering their respective communities to resilience.

B. The NDRRM Framework

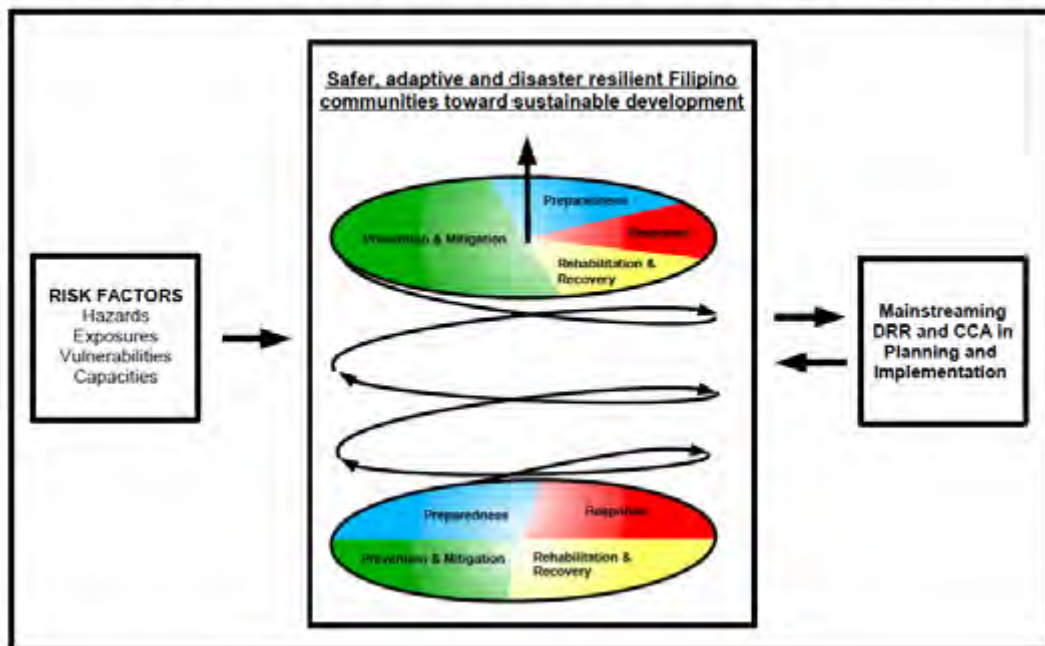
On June 16, 2011, the National Disaster Risk Reduction and Management Framework (NDRRMF) was approved by the executive committee of the National Disaster Risk Reduction and Management Council (NDRRMC). The framework is in conformity with and captures the essence and priorities of Republic Act 10121.

The Framework envisions a country which has a **“safer, adaptive and disaster-resilient Filipino communities toward sustainable development.”** The goal is to have a paradigm shift from reactive to proactive DRRM wherein men and women have increased their awareness, understanding on DRRM with the end in view of increasing people’s resilience and decreasing their vulnerabilities. Our aim is to empower leaders and communities and to develop the “right” mindset and positive behavioral changes towards reducing and managing risks and lessening the effects of disasters. This term is about building back better or building on from our learnings, good practices, research and experiences, helping us address the underlying causes of our vulnerability and increasing our ability to adjust to the situation before us. By being adaptive, we learn to innovate and go to the next level.

Disaster-resilient communities are achieved when the risk reduction efforts have been successful and have made the people stronger (in a positive way and not just in terms of their coping mechanism), increasing their ability to bounce back after a disaster. It is important to instill the culture of safety by increasing people’s capacity to bounce back and decrease disaster losses and impact. In the end, DRRM is all about addressing the underlying causes of people’s vulnerability; building their individual, collective and institutional capacities and building back better within people’s live become sustainably better.

The country is challenged by increasing disaster and climate risks caused by dynamic combinations of natural and human-induced hazards, exposure, and people’s vulnerabilities and capacities. There is an urgent need for the country to work together through multi-stakeholder partnerships and robust institutional mechanisms and processes so that Filipinos will be able to live in safer, adaptive and disaster resilient communities on the path to developing sustainably.

Philippine Disaster Risk Reduction and Management Framework



This DRRM framework emphasizes that through time, resources invested in disaster prevention, mitigation, preparedness and climate change adaptation will be more effective towards attaining the goal of adaptive, disaster resilient communities and sustainable development. The Framework shows that mitigating the potential impacts of existing disaster and climate risks, preventing hazards and small emergencies from becoming disasters, and being prepared for disasters, will substantially reduce loss of life and damage to social, economic and environmental assets. It also highlights the need for effective and coordinated humanitarian assistance and disaster response to save lives and protect the more vulnerable groups during and immediately after a disaster. Further, building back better and building better lives after a disaster will lead to sustainable development after the recovery and reconstruction process.

This NDRRM Framework which serves as the principal guide to disaster risk reduction and management efforts in the Philippines shall be reviewed on a five-year interval or as may be deemed necessary in order to ensure its relevance to the times.

C. The NDRRM Plan

According to the NDRRMC, the National DRRM Plan serves as the national guide on how sustainable development can be achieved through inclusive growth while building the adaptive capacities of communities; increasing the resilience of vulnerable sectors; and optimizing disaster mitigation opportunities with the end in view of promoting people's welfare and security towards gender-responsive and rights-based sustainable development

The NDRRMP outlines the activities aimed at strengthening the capacity of the national government and the local government units (LGUs) together with partner stakeholders, to build the disaster resilience of communities and to institutionalize arrangements and measures for reducing disaster risks, including projected climate risks and enhancing disaster preparedness and response capabilities at all levels. It highlights, among others, the importance of mainstream DRRM and CCA in the development processes such as policy formulation, socio-economic development planning, budgeting and governance particularly in the area of environment, agriculture, water, energy, health, education, poverty reduction, land-use and urban planning and public infrastructure and housing among others. Mainstreaming also puts to forth the need to develop common tools to analyze the various hazards and vulnerability factors which put our communities and people into harm's way.

The NDRRMP also highlights the need for institutionalizing DRRM policies, structures, coordination mechanisms and programs with continuing budget appropriation on DRR from national down to local levels. Through permanent mechanisms, competency and science-based capacity building activities can be done, alongside the nurturing of continuous learning through knowledge development and management of good DRRM practices on the ground.

The NDRRMP adheres to the principles of good governance within the context of poverty alleviation and environmental protection. It is about partnerships and working together – engaging the participation of CSOs, the private sector and volunteers in the government's DRRM programs towards complementation of resources and effective delivery of services to the citizenry.

In accordance with the NDRRMF, through the NDRRMP, the country will have a ***“Safer, adaptive and disaster resilient Filipino communities towards sustainable development.”*** This will be achieved through the four distinct yet mutually reinforcing

priority areas, namely, (a) Disaster Prevention and Mitigation; (b) Disaster Preparedness; (c) Disaster Response; and (d) Disaster Recovery and Rehabilitation. Each priority area has its own long term goal, which when put together will lead to the attainment of our country's over goal/vision in DRRM.

These priority areas are not autonomous from the other nor do they have clear start and end points. The 4 priority areas are NOT seen as a mere cycle which starts in prevention and mitigation and ends in rehabilitation and recovery. They... (a) Mutually reinforce each other and are interoperable; (b) DO NOT, SHOULD NOT and CANNOT stand alone; (c) Have no clear starting nor ending points between each of the aspects and overlaps are to be expected; (d) Are problem-needs and asset-strengths centered; and (e) All point to one direction – reduce people's vulnerabilities and increasing their capacities.

In summary, the NDRRMP has 4 priority areas with 4 long term goals; 14 objectives; 24 outcomes; 56 outputs; and 93 activities.

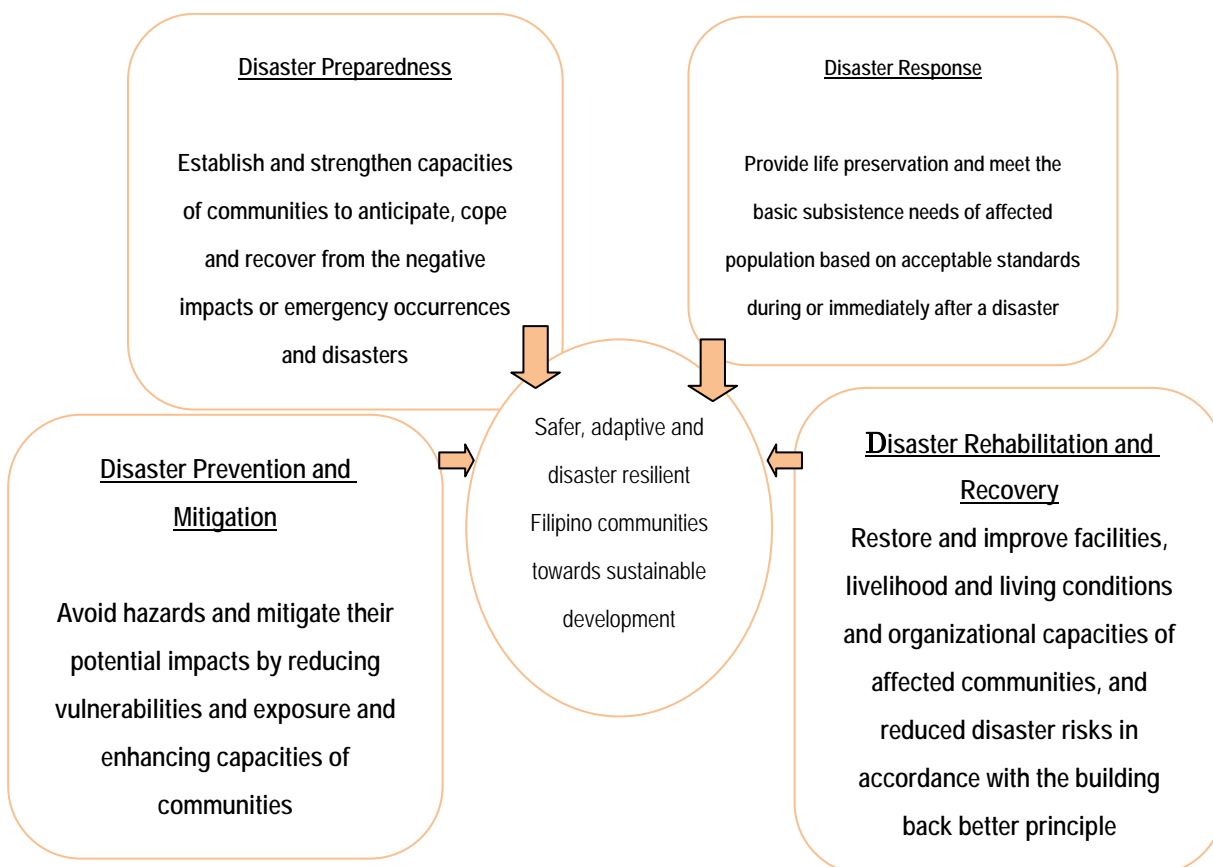
The priority area on ***Disaster Prevention and Mitigation*** provides key strategic actions that give importance to activities revolving around hazards evaluation and mitigation, vulnerability analyses, identification of hazard-prone areas and mainstreaming DRRM into development plans. It is based on sound and scientific analysis of the different underlying factors which contribute to the vulnerability of the people and eventually, their risks and exposure to hazards and disasters.

Disaster Preparedness provides for the key strategic actions that give importance to activities revolving around community awareness and understanding; contingency planning; conduct of local drills and the development of a national disaster response plan. Risk-related information coming from the prevention and mitigation aspect is necessary in order for the preparedness activities to be responsive to the needs of the people and situation on the ground. Also, the policies, budget and institutional mechanisms established under the prevention and mitigation priority area will be further enhanced through capacity building activities, development of coordination mechanisms. Through these, coordination, complementation and interoperability of work in DRRM operations and essential services will be ensured. Behavioral change created by the preparedness aspect is eventually measured by how well people responded to the disasters. At the frontlines of preparedness are the local government units, local chief executives and communities.

Disaster Response gives importance to activities during the actual disaster response operations from needs assessment to search and rescue to relief operations to early recovery activities are emphasized. The success and realization of this priority area rely heavily on the completion of the activities under both the prevention and mitigation and preparedness aspects, including among others the coordination and communication mechanisms to be developed. On-the-ground partnerships and the vertical and horizontal coordination work between and among key stakeholders will contribute to successful disaster response operations and its smooth transition towards early and long term recovery work.

The **Rehabilitation and Recovery** priority area covers employment and livelihoods, infrastructure and lifeline facilities, housing and resettlement, among others. These are recovery efforts done when people are already outside of the evacuation centers.

The NDRRMP recognizes that certain **concerns cut across** the 4 DRRM priority areas. These include health, human-induced disasters, gender mainstreaming, environmental protection, cultural sensitivity or indigenous practices, and the rights based approach. They are a combination of issues and approaches that should be taken into consideration in each of the priority areas.



The NDRRMP was scheduled to commence in 2011, immediately after its approval from the members of the National DRRM Council members. In general, the set of activities are divided into **three timelines**, with the first two having 2 years interval while the last one with 5 years, to wit:

Short term	2011 – 2013
Medium term	2014 – 2016
Long term	2017 – 2028

However, specifically for the priority areas on Response and Rehabilitation and Recovery, **Operational Timelines** were used primarily to give an overall guidance on “rapid” time element in providing humanitarian activities and recovering from the disasters. Likewise, the operational timelines will guide the plan’s implementation and monitoring activities for the two priority areas.

These operational timelines are as follows:

Immediate Term (IT)	within 1 year after the occurrence of the disaster
Short Term (ST)	within 1 to 3 years after the occurrence of the disaster
Medium Term (MT)	within 3 to 6 years after the occurrence of the disaster
Long Term (LT)	beyond 6 years after the occurrence of the disaster

All throughout the NDRRMP, various strategies were identified to be used in order to achieve the desired key result areas under each DRRM aspect. These are:

- Advocacy and Information, Education and Communication (IEC)
- Competency-based capability building
- Contingency Planning
- Education on DRRM and CCA for ALL
- Institutionalization of DRRMCs and LDRRMOs
- Mainstreaming of DRR in ALL plans
- Research, Technology Development and Knowledge Management
- Monitoring, evaluation and learning
- Networking and partnership building between and among stakeholders, media and tiers of government

In each of the activities under the NDRRMP, **agency leads and implementing partner agencies** and/or groups were identified. Following RA 10121, the overall lead or focal agency for each of the four priority areas are the vice-chairpersons of the National DRRM

Council.

The NDRRMP also identified areas where **resources** can be tapped for the implementation of the activities. These are both for the national and local levels. However, because mainstreaming of DRRM into policies and plans is the primary thrust of the NDRRMP, these activities will not have separate funding sources but will be mainstreamed into the activities of the agencies and offices. Sources identified include the General Appropriations Act (GAA); National and Local DRRM Funds; Internal Revenue Allocation (IRA); Priority Development Assistance Fund (PDAF); Donor Funds; Adaptation and Risk Financing, among others. Aside from the fund sources, the NDRRMP will also tap into the non-monetary resources available which can help attain the targets identified in this plan. These are the community-based good practices for replication and scaling up; indigenous practices on DRRM; Public-Private-Partnerships; and the different networks (DRR and CCA) of key stakeholders.

Monitoring and evaluation are essential components of results-based programming in DRRM as these will ensure that the plan's on-time implementation and that learnings from past experiences become input to the plan altogether. Also, through monitoring and evaluation activities, appropriate and needed revisions and/or changes can be identified, from the identified activities to the implementation mechanisms, in case more appropriate ones are realized. These will be led by the Office of Civil Defense, in close coordination with the four vice chairpersons of the NDRRMC by focusing on relevance, effectiveness, efficiency, impact and sustainability. A standard monitoring and evaluation template will be developed by the OCD together with the members of the Technical Management Group.

As such, the NDRRM Plan will serve as a roadmap on how disaster risk reduction and management will contribute to the attainment of sustainable development through inclusive growth and build the adaptive capacities of communities, increase the resilience of vulnerable sectors and optimize disaster management opportunities with the end view of promoting people's welfare and security towards gender-responsive and rights-based sustainable development.

Implementation Strategies and Mechanisms

All throughout the NDRRMP, various strategies were identified to be used in order to achieve the desired key result areas under each DRRM aspect. These are:

Advocacy and Information, Education and Communication (IEC)

A strong national and local commitment is required to save lives and livelihoods threatened by natural and human-induced disasters. Achieving this will need increasing visibility and understanding of DRRM and CCA issues, mobilize partnerships, encourage actions and gather public support for successful implementation of the different activities. The NDRRMP will use evidence-based advocacy to influence people, policies, structures and systems in order to build resilient Filipino communities by raising awareness, working with the media and key stakeholders. The NDRRM will develop advocacy, IEC and various communication strategies based on risk assessments and good DRRM practices.

Competency-based capability building

Conducting customized training programs should be developed to ensure that people are trained based on the needed skills in the different DRRM aspects. Different people have different needs and capacities and developing competency-based capability building programs ensures that knowledge, skills and attitudes are enhanced and built upon further.

Contingency Planning

More commonly used before as only part of disaster preparedness activities, contingency planning is now a living document which is updated and used in all the different the priority areas of DRRM. Learnings from past experiences and complementary actions between and across areas should be taken into consideration in developing contingency planning at all levels.

Education on DRRM and CCA for All

Mainstreaming DRRM into formal education through the integration of DRRM and CCA concepts in the curriculum for basic education, NSTP, and bachelors' degree programs. This also includes the conduct of DRRM and CCA training to all public sector employees as mandated by law.

Institutionalization of DRRMCs and LDRRMOs

The creation of permanent local DRRM offices and functioning councils at the local level are some of the ways to ensure that all DRRM-related activities, plans and program will be implemented and sustained, especially at the local level. Having a point of convergence is important to ensure that risk reduction measures complement one another and are institutionalized with the end in view of reducing people and institutional vulnerabilities to

disasters. This will likewise promote the paradigm shift into local planning by investing into risk-reduction measures and not just be reactionary and conduct response operations when the disaster strikes.

Mainstreaming of DRR in All Plans

In all 4 priority areas under the NDRRMP, ensuring the mainstreaming of DRRM and CCA in the various programs, plans, projects of either national or local government units, including the private sector groups and other members of the community is a must. This primarily means that disaster risks analysis and impacts are integrated and taken into consideration in the development of policies and plans by the different agencies, organizations and sectors.

Research, Technology Development and Knowledge Management

With the changes in the climate and technological advances, regularly conducting research and technology development will contribute to more innovative and adaptive mechanisms and approaches towards DRRM and CCA. Along side new information, knowledge management through database development, documentation, replication and recognition of good practices will help achieve the objectives and targets of the NDRRMP through more efficient use of resources, learnings and experiences.

Monitoring, evaluation and learning

Feedback mechanisms are important aspects of gauging performance targets and learning from our experiences on the ground. The NDRRMP, being a long plan which transcends various administrations and leaderships, need to be constantly looked into in terms of its relevance and impact on the changing situations on the ground.

Networking and partnership building between and among stakeholders, media and tiers of government

Building resilient communities cannot and should not be done by a single agency or organization. Its success is highly dependent on the close collaboration and cooperation of the different stakeholders. Building effective and mutually reinforcing partnerships and evolving networks ensure the multi-stakeholder and multi-sectoral participation of the different players in DRRM.

Agency Leads and Implementing Partners

In each of the activities under the NDRRMP, agency leads and implementing partner

agencies and/or groups were identified. Their roles will primarily be:

Vice-Chairpersons of the NDRRMC

Following RA 10121, the overall lead or focal agency for each of the four priority areas are the vice-chairpersons of the National DRRM Council, namely:

- | | |
|--|------|
| ✧ V-Chairperson for Disaster Prevention and Mitigation | DOST |
| ✧ V-Chairperson for Disaster Preparedness | DILG |
| ✧ V-Chairperson for Disaster Response | DSWD |
| ✧ V-Chairperson for Rehabilitation and Recovery | NEDA |

Agency Leads

- ✧ Takes the lead in initiating the implementation of the activities
- ✧ Coordinate and collaborate with the different implementing partners to ensure that the activities are operationalized
- ✧ Monitor the progress of the activities
- ✧ Evaluate the implementation development and program efficiency
- ✧ Consolidate reports from the implementing partners and submit to the respective vice chairperson of the DRRM priority area

Implementing Partners

- ✧ Perform the activities to achieve the specific outcomes
- ✧ Work with other implementing partners within the context of coordination, collaboration and partnership
- ✧ Submit report to the Agency Leads

National Disaster Risk Reduction and Management Council (NDRRMC)

- ✧ As explicitly stated under Republic Act 10121, the NDRRMC has the overall responsibility of approving the NDRRMP and ensuring it is consistent with the NDRRMF. It also has the main responsibility of monitoring the development and enforcement by agencies and organizations of the various laws, guidelines, codes or technical standards required by this Act; managing and mobilizing resources for DRRM, including the National DRRM Fund (NDRRMF); monitoring and providing the necessary guidelines and procedures on the Local DRRM Fund (LDRRMF) releases as well as utilization, accounting and auditing thereof.

Office of Civil Defense

- ✧ As prescribed in RA 10121, the Office of Civil Defense has the main responsibility in ensuring the implementation and monitoring of the NDRRMP. Specifically, it is tasked to conduct periodic assessments and performance monitoring of the member-agencies of the NDRRMC and the RDRRMCs as defined in the NDRRMP. The OCD is the agency responsible for ensuring that the physical framework, social, economic and environmental plans of communities, cities, municipalities and provinces are consistent with the NDRRMP. OCD needs to ensure that all DRR programs, projects and activities requiring regional and international support shall be in accordance with duly established national policies and aligned with international agreements
- ✧ At the regional and local levels, the OCD needs to review and evaluate the Local DRRM Plans (LDRRMPs) to facilitate the integration of disaster risk reduction measures into the local Comprehensive Development Plan (CDP) and Comprehensive Land Use Plan (CLUP)

Regional Disaster Risk Reduction and Management Councils (RDRRMCs)

- ✧ At the regional level, the RDRRMCs shall be responsible in ensuring that DRRM-sensitive regional development plans contribute to and are aligned with the NDRRMP. The RDRRMC chairperson shall be the overall lead.

Provincial, City, Municipal Disaster Risk Reduction and Management Councils (P/C/MDRRMCs or Local DRRMCs)

- ✧ At the local government level, it is the primary duty of the Local DRRM Council to ensure that DRRM is mainstreamed into their respective CDP and CLUP and other local plans, programs and budgets as a strategy in sustainable development and poverty reduction. By doing so, the LGUs will be sure that their respective DRRM-programs will be included in their local budgets for each fiscal year. But before DRRM can be mainstreamed into the CDP and CLUP, the local DRRM Plan will have to be developed by the Local DRRM Office and using the National DRRM Plan as an overall guide.

Local Disaster Risk Reduction and Management Offices (LDRRMOs)

- ✧ The Local DRRM Offices (LDRRMOs) at the provincial, city and municipal levels and the Barangay Development Councils shall design, program and coordinate DRRM activities consistent with the NDRRMP and develop the Local DRRM Plan of their

respective LGUs. The LDRRMPs shall be consistent and aligned with the targets set by the NDRRMP. Likewise, this office shall take the lead in implementing the LDRRMP.

- ✧ To do this, the office shall
 - ✧ Facilitate and support risk assessments and contingency planning activities at the local level;
 - ✧ Consolidate local disaster risk information which includes natural hazards, vulnerabilities and climate change risks and maintain a local risk map;
 - ✧ Formulate and implement a comprehensive and integrated LDRRMP in accordance with the national, regional and provincial framework and policies on DRR in close coordination with the local development councils (LDCs)
 - ✧ Prepare and submit to the local sanggunian through the LDRRMC and the LDC the annual LDRRMO Plan and budget, the proposed programming of the LDRRMF, other dedicated DRRM resources and other regular funding source/s and budgetary support of the LDRRMO/BDRRMC.
 - ✧ Conduct continuous disaster monitoring
 - ✧ Identify, assess and manage the hazards, vulnerabilities and risks that may occur in their locality
 - ✧ Disseminate information and raise public awareness
 - ✧ Identify and implement cost-effective risk reduction measures/strategies
 - ✧ Maintain a database of human resource, equipment, directories and local of critical infrastructures and their capacities such as hospitals and evacuation centers
 - ✧ Develop, strengthen and operationalize mechanisms for partnership or networking with the private sector, CSOs, and volunteer groups

Resource Mobilization

- ✧ *At the National and Local Levels, the following sources can be tapped to fund the various DRRM programs and projects:*
 1. General Appropriations Act (GAA) – through the existing budgets of the national line and government agencies
 2. National Disaster Risk Reduction and Management Fund (NDRRMF)
 3. Local Disaster Risk Reduction and Management Fund (LDRRMF)
 4. Priority Development Assistance Fund (PDAF)
 5. Donor Funds
 6. Adaptation and Risk Financing
 7. Disaster Management Assistance Fund (DMAF)

- ✧ *Other Resources* aside from the fund sources, the NDRRMP will also tap into the non-monetary resources available which can help attain the targets identified in this plan, namely:
 1. Community-based good practices for replication and scaling up
 2. Indigenous practices on DRRM
 3. Public-Private-Partnerships
 4. Networks (DRR and CCA) of key stakeholders

Monitoring, Evaluation and Learning

Monitoring and evaluation are essential components of results-based programming in DRRM as these will ensure that the plan's on-time implementation and that learnings from past experiences become input to the plan altogether. Also, through monitoring and evaluation activities, appropriate and needed revisions and/or changes can be identified, from the identified activities to the implementation mechanisms, in case more appropriate ones are realized. These will be led by the Office of Civil Defense, in close coordination with the four vice chairpersons of the NDRRMC by focusing on relevance, effectiveness, efficiency, impact and sustainability. A standard monitoring and evaluation template will be developed by the OCD together with the members of the Technical Management Group.

Primarily, monitoring and evaluation will be based on the indicators, targets and activities identified in each of the four priority areas on DRRM. The indicators set in the NDRRMP will be applicable to both the national and local levels. The national level targets will be monitored by the lead and implementing agencies, in close coordination with the regional and local DRRM councils. Each lead agency will in turn submit reports to the respective vice chairperson of the NDRRMC in charge of the specific priority area.

The local level targets will be operationalized depending on the needs and situation on the LGU. These will be captured in the respective local DRRM plans which the LGUs need to develop through their respective local DRRM offices and councils. Customization of the targets will depend on the risk assessments and analysis done in their respective local areas. The local DRRM plan will be mainstreamed into the CDP and CLUP and will form part of the LGU mandated plans.

Monitoring and evaluation will also include an audit report on the use and status of the National DRRM Fund and how the said fund contributed to the attainment of the NDRRMP.

Throughout all activities, ensuring “Safer, Adaptive and Disaster-Resilient Filipino Communities toward Sustainable Development” will be the main focus. It will be essential that this learning is captured and shared amongst the various stakeholders, leads and partners. Relatedly, throughout its implementation, reporting on the progress on the NDRRMP will be communicated through various media and partners, making sure that we are able to share the learnings effectively. These will then feed-into the NDRRMP, making it adaptive to the changing environment and needs on the ground. In the Monitoring and Evaluation activities, it will be essential to link up the learning from this NDRRMP with that of the NCCAP and other related plans.

RA 10121 requires the National DRRM Council through the OCD to submit to the Office of the President, Senate and House of Representatives, ***within the first quarter of the succeeding year***, an annual report relating to the progress of the implementation of the NDRRMP.

D. Recognizing Communities' DRRM Initiatives

➤ The National Disaster Consciousness Month

The National Disaster Consciousness Month brings to the fore various stakeholders from the national to down to the community level through the conduct of several DRR activities. Proclamation No. 296 dated July 29, 1988 declared the first week of July of every year as the National Disaster Consciousness Week aimed to increase the awareness of every Filipino to the ever threatening disaster for a better appreciation of the government's disaster preparedness programs. However, there is a need to lengthen the observance to one month, to include man-made disasters and other emergencies. One month of observation will provide national government agencies and local government units ample time to implement disaster awareness campaign with longer focus and on a comprehensive basis. It is also imperative to empower and reinforce the capacity of the Disaster Risk Reduction and Management Councils at all levels to ensure a coherent, integrated, proficient and responsive emergency management system in the country. To achieve this desired result and to effectively ensure the sustainability of the disaster risk management program of the government, at the grassroots level, dedicated personnel from local government units have to be deputized or designated as focal points of conduits of the program in keeping with local autonomy. The President of the Republic of the Philippines,

on August 10, 1999, declared the whole month of July as the National Disaster Consciousness Month to be collectively observed by all Filipinos throughout the country through the conduct of fitting activities for the occasion.

Various month-long activities are conducted in schools, barangays, cities, municipalities and government offices for the observance of the National Disaster Consciousness Month (NDCM) such as hanging of streamers bearing the year's theme, motorcade, foot parade, fluvial parade, poster-slogan making contests, essay writing contests, orientations, seminars, fora, drills and exercises.



➤ **The National Fire Prevention Month**

Presidential Proclamation No. 115–A dated November 16, 1966 declared the Month of March to be the official month-long observation of Fire Prevention Month in order to provide education and awareness to lessen the incidence of fire in the Philippines. March is the start of summer season in the Philippines and temperature range to 36 to 39 degrees Celsius. Summer can cause about 9,000 – 10,000 fire incidents nationwide and all types of households can fall victim.



The Bureau of Fire Protection under the Department of the Interior and Local Government, is the lead agency to implement the conduct of month-long observance in coordination with

various stakeholders especially the local government units, the schools and communities. Every year, a theme for the observance is formulated where the various organizations can focus on with their series of activities such as display of streamers, unity walk, fire fighting drills, fire safety Olympics, fire prevention games and contest, fire safety awareness campaign and conduct of symposia, for a and orientations as well as trainings. The schools are the most important target stakeholder since kids who can learn at an early age will bring the learnings as they grow up and share such knowledge to their parents and the rest of the members of the family. *Berong Bombero sa Paaralan* or Advocacy for Fire Safety in Schools are conducted. The BFP also conducts a three-day open house on all fire stations. School children are invited to the fire stations where a showcase of equipment and accessories with firemen are held. The BFP advocates that in creating a safe environment, fire safety must begin at home.

One of the main highlights also of the month-long observance is the house-to-house Fire Safety Inspection wherein BFP personnel conduct ocular visits inside houses and educate residents on exit drills and the proper use of fire extinguishers since BFP statistics reveal that most of the affected during structural fires are residential areas

➤ **Gawad KALASAG**

Gawad KALASAG is the highest form of recognition bestowed upon an individual, groups and organizations who have done exemplary contribution in the field of disaster risk reduction and management and humanitarian assistance in the Philippines.

Gawad is a Filipino terms which means “award” and KALASAG stands for KALAmidad at SAKuna Labanan, SARiling Galing ang Kaligtasan. Kalasag is the Filipino term for “shield” used by early Filipinos as a means of protection from attacks of enemies or harmful animals. As such, Gawad KALASAG was conceived to protect or shield high risk communities against hazards by encouraging participation of various stakeholders in designing and implementing Disaster Risk Management (DRM) programs.

Initiated in 1998, Gawad KALASAG is presently NDRRMC's recognition scheme in its search for excellence on DRM and humanitarian assistance. It provides the mechanism in obtaining sustained commitment and support from the highest level of government by recognizing the exceptional contributions of the various DRM practitioners in rebuilding the resilience of nations and communities to disaster. At the same time, Gawad KALASAG

continues to promote the spirit of volunteerism among agencies in providing the help during the response phase of DRM. Practitioners of Local Disaster Coordinating Councils (LDCCs) at the provincial, city, and barangay levels. as the frontliners in preparing for, responding to, and recovering from any type of disaster or emergency. Moreover, Non-Government Organizations (NGOs), Private Organizations, Government Managers and Volunteer Organizations are the



prime contributors and major stakeholders/partners in the implementation of DRM and humanitarian response programs.

Moreover, Non-Government Organizations (NGOs), Private Organizations, Government Managers are the prime contributors and major stakeholders/partners in the implementation of DRM and humanitarian response programs.

In 2005, at the World Conference on Disaster Reduction in Kobe, Japan, the international community signed a 10-year Disaster Risk Reduction (DRR) strategy called the Hyogo Framework for Action (HFA). The HFA sets out three (3) strategic goals, namely, (a) integration of disaster risk reduction into sustainable development policies and planning; (b) development and strengthening of institutions, mechanisms and capacities to build resilience to hazards; and, (c) systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programs. Moreover, the HFA outlines five priorities for action, which cover the main areas of DRR, as follows: (a)

ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation; (b) identify, assess and monitor disaster risks and enhance early warning advisories; (c) use knowledge, innovation, and education to build a culture of safety and resilience at all levels; (d) reduce the underlying risk factors; and, (e) strengthen disaster preparedness for effective response at all levels. The HFA also suggests important areas for intervention within each priority.

As a signatory to HFA, the Philippine Government, through the National Disaster Coordinating Council (NDCC) had adopted the above-mentioned strategic goals by developing and enhancing current plans, programs and activities on DRR. In June 2007, NDCC initiated, through the Partnership for Disaster Reduction in the South East Asia Phase 4 Project (PDRSEA 4), the formulation of the Philippine National Strategic Plan on Community-Based Disaster Risk Management (CBDRM). The PDRSEA 4 outlined activities, which laid the foundation in establishing an effective system to promote CBDRM.

As Gawad KALASAG moves toward a decade in celebrating the best practices of stakeholders in DRM, it will expand its current recognition scheme to include award categories which will promote awareness and eventual expansion of CBDRM program in the Philippines. In addition to the above list of DRM practitioners, initiatives from media, donor agencies, and the community themselves shall also be publicly acknowledged. The promotion of CBDRM, through Gawad KALASAG, is one advocacy strategy which helps realize the priorities for action, set by states, organizations and other actors, in implementing the HFA.



Gawad KALASAG Trophy symbolizes shield or protection against any disaster through proactive disaster risk reduction.

As of February 2008 data, 42 LDCCs, 17 NGOs, 14 individuals and 49 groups/institutions have received various recognitions from Gawad KALASAG.

Gawad KALASAG Guiding Principles

Gawad KALASAG is guided by a set of principles, to include among others: stakeholders' participation, transparency, innovativeness, partnership, self-reliance, and the spirit of volunteerism. It encourages the active participation of key stakeholders throughout the conceptualization stage to the actual implementation of the program. Through the years, Gawad KALASAG's selection process is kept transparent and the evaluation result is consistently reliable.

In the light of the most recent development on DRR at the global community, Gawad KALASAG expands its award categories in order to be more responsive to the priorities set in the HFA implementation. Building on the existing scheme, Gawad KALASAG henceforth gives emphasis on DRR.

Gawad KALASAG Objectives

The Gawad KALASAG aims to recognize outstanding performance of Local Disaster Risk Reduction and Management Councils (LDRRMCs), private/volunteer organizations, local, national and international NGOs, donor agencies, and the communities as major stakeholders in implementing significant DRM projects and activities and, in providing humanitarian response and assistance to affected communities. It also aims to recognize individuals, groups or institutions that have shown extraordinary courage, heroism, self-sacrifice, and bravery in times of natural and human-made emergencies and disasters.

Categories of Award

The following are the awards to be given:

- Gawad KALASAG for Best Local Disaster Risk Reduction and Management Council (LDRRMC)
 - Provinces
 - Cities
 - Highly Urbanized Category
 - Component/Independent Category
 - Municipalities
 - First to Third Class Category
 - Fourth to Sixth Class Category
 - Barangays

Urban Category

Rural Category

- Gawad KALASAG for Non-Government Organizations (NGOs) on Humanitarian Assistance
 - NGO (local)
 - NGO (national)
 - NGO (international)
- Gawad KALASAG for Private Volunteer Organizations, Government Emergency Managers, Schools and Hospitals
 - Private Volunteer Organizations
 - Government Emergency Managers
 - Schools
 - Hospitals
- Gawad KALASAG for Heroic Act/Deed of Individuals/Groups during Emergency Response and Rescue Operations
 - Individuals (surviving and posthumous)
 - Groups
- Special Recognition Awards
 - Individuals
 - Support Organizations/Institutions (local)
 - Support Organizations/Institutions (international)
- Gawad KALASAG for Community-Based Disaster Risk Management (CBDRM)
 - Donor (for sustained contribution on CBDRM program in the country)
 - Media/Institution (for promotion of effective public campaign measures on the dissemination of information on CBDRM)
 - NGO (for sustained contribution on CBDRM program in the country)

Coverage of the Award

The period of assessment for the search of Gawad KALASAG on all categories shall be the preceding year or from January 1 to December 31 of that year.

For Local Disaster Risk Reduction and Management Councils (LDRRMCs), all provincial, municipal, city and barangay local DRRMCs are eligible for recognition subject to the guidelines and criteria set forth by the National Selection Committee (NSC).

For Humanitarian Assistance, local and national NGOs with humanitarian assistance

program and officially recognized by the Department of Social Welfare and Development (DSWD) and the Philippine National Red Cross (PNRC) are eligible for recognition subject to the guidelines and criteria set forth by the NSC.

For Private Volunteer Organizations, Government Emergency Managers, Schools and Hospitals, all private/volunteer organizations and government emergency managers who are not members of the Disaster Risk Reduction and Management Councils but officially recognized by NDRRMC, are eligible for recognition subject to the existing criteria set forth by the NSC. Only those schools and hospitals with official accreditation from the Department of Education (DepEd) and Department of Health (DOH), respectively, shall be considered to receive awards.

For Heroic Act/Deed of Individuals/Groups During Emergency Response and Rescue Operations, individual/s who exemplifies deed of heroism in saving lives in times of emergencies and calamities are eligible for the NDRRMC Gawad KALASAG. Any awardee who risked and lost his/her life in carrying out heroic deeds shall be given a Posthumous Award.

For Special Recognition Awards, international and local organizations/institutions and individuals that have rendered exemplary support to the country's DRM program are eligible for recognition subject to the guidelines and criteria set forth by the NSC.

For CBDRM, donor agencies and NGOs which have sustainably implemented CBDRM projects in the country for a number of years as well as media outfits/institutions that have promoted effective public campaign measures on CBDRM are eligible for recognition subject to the guidelines and criteria set forth by the NSC.

Gawad KALASAG Hall of Fame

Those LDRRMCs, organizations, institutions, groups, and individuals that have garnered the Gawad KALASAG for three (3) consecutive years, since 2001, shall be given the Hall of Fame Award, provided that the potential awardee has consistently obtained an excellent rating (91-100%) from the NSC. The Hall of Fame Awardee may again join the Search only after five (5) years from receipt of their Hall of Fame Award. However, they may be bestowed with a special citation award every year of the search

Composition of the National Selection Committee (NSC)

To ensure a smooth conduct of the search, Selection Committees have been organized at all levels. The NSC composition is replicated at the regional and all local DRRMCs. The NSC shall be composed of the following:

Chair	The Secretary, Department of the Interior and Local Government (DILG) or Representative
Co-Chair	Administrator, OCD or Representative
Vice Chair	Civil Society Organization (CSO) Representative
Member	Secretary, Department of Health (DOH) or Representative Secretary, Department of Education (DepEd) or Representative Secretary, Department of Social Welfare and Development (DSWD) or Representative Secretary, Department of Science and Technology (DOST) or Representative Director-General, Philippine Information Agency (PIA) or Representative Lead Convenor, National Anti-Poverty Commission (NAPC) or Representative Secretary-General, Philippine Red Cross (PRC) or Representative President, Union of Local Authorities of the Philippines (ULAP) or Representative President, League of Provinces of the Philippines (LPP) or Representative
Secretariat	Office of Civil Defense (OCD)

Assessment Checklist

Assessment Checklist on LDRRMCs Basic Disaster Risk Management Capability will be one of the bases for evaluation. On preparedness, LDRRMCs (P/M/CDRRMCs) capability to “influence” positively their respective lower DRRMCs will be included in this category; how they were able to exercise their leadership role on the functionality of lower DCCs; and if they were able to duplicate their efforts on mitigation, preparedness, response, and rehabilitation at the lower DRRMCs. The 44 points for preparedness have been reallocated to give 14 points on the above.

The privilege of receiving the awards in the form of Gawad KALASAG trophy and cash prize in Malacañang Palace to be handed by the President is given only to first prize winners and separate awarding ceremony for the second and third place winners will be done in the

region.

➤ **Seal of Disaster Preparedness**

The Seal of Disaster Preparedness (SDP) is initiated by the Department of the Interior and Local Government (DILG). It is conferred to a local government which demonstrates an acceptable level of disaster preparedness and disaster preparedness response before and during calamities as an official symbol of excellence.

The Seal has **two levels of assessment**. The **first level** looks into disaster preparedness before a calamity occurs. The **second level** focuses on disaster preparedness-response during a calamity.

A local government that passes Level 1 Assessment receives a Certificate of Recognition. This Certificate is to be sent through official correspondence from the Secretary of the Interior and Local Government.

On the other hand, a local government that passes both Level 1 and Level 2 Assessments receives the Seal and Disaster Management Fund or Disaster Equipage.

Objectives of the Seal of Disaster Preparedness

1. To recognize and incentivize local government performance in institutionalizing disaster preparedness.
2. To assess performance gaps, link gaps to policy or program intervention and monitor improvement(s) on disaster preparedness.

Assessment Tools

Tools used for this assessment are as follows:

1. Data Capture Form-tool for gathering data requirements for assessment.
2. User's Guide-operations guide for key implementers in the conduct of the assessment, data verification, data processing and reporting.
3. Disaster Preparedness Index Template- is an automated spreadsheet that is capable of computing the Disaster Preparedness Index or the Disaster Preparedness-Response Index

Level 1 Assessment Criteria: Disaster Preparedness which is a test of a local

government capability to address the potential effects of a disaster to human life, disaster preparedness implies a window of 6 to 12 hours. However, in the thinking of the Seal, being prepared for a disaster accords emphasis on the foundational administrative requirements, i.e., structure, competence and tools, of disaster preparedness.

- Leadership Structure
 - Organization of the Disaster Risk Reduction and Management Council and the Disaster Reduction and Management Office
 - Incident Command System
 - Disaster Operations or Emergency Centre
- Guide to Action
 - Risk Assessment and Mapping
 - Institutionalized Planning and Budgeting
- Disaster Preparedness
 - Technical Competency
 - Community Awareness
 - Contingency Planning, Early Warning and Evacuation Alert System, Pre-emptive Evacuation, Stockpiling and Equipping
- Partnership, Volunteerism and Innovation or partnering with national government agencies, other local governments, society and the private Sector, presence of organized volunteers and the spirit of volunteerism, and local innovation.

Level 2 Assessment Criteria: Disaster Preparedness Response is a test of a local government capability in ensuring basic survival and subsistence needs of the affected population based on acceptable standards during a disaster.

1. Search and Rescue
 - Trained Personnel
 - Response time
 - Equipage
 - Zero Casualty
2. Evacuation Centre Management
 - Adequate Temporary shelter for evacuees
 - Power
 - Food and Water Supply
 - Health and Sanitation
 - Counselling
 - Trained Centre Management Personnel

According to the DILG, being the Vice Chair of Disaster Preparedness in the Philippines, SDP is intended to “establish a benchmark information on disaster preparedness of local governments from which will evolve government interventions to influence a progressive capacity build-up among provinces, cities and municipalities, assess post-intervention disaster preparedness to determine performance gaps that need to be aggressively addressed, and incentivize institutionalized disaster preparedness as a proof of official recognition to the valuing by a local government of public safety and welfare.”

General Assessment Procedure

Level I Assessment

- Step 1. Initial Assessment - Using the prescribed Data Capture Form, the concerned MLGOO, CIGOO, City Director or Provincial Director conducts an initial assessment on disaster preparedness. Required supporting documents are also assembled during this period, in preparation for verification. The main respondent is the LDRRM Officer.
- Step 2. First Verification - Through cross-posting, the MLGOO, CIGOO, City Director or Provincial Director stationed in another local government and a CSO representative verify the quality of data through document review, interview and observation, as appropriate
- Step 3. Preparation of Disaster Preparedness Index - After verification, the First Verification Team prepares the Disaster Preparedness Index using the automated template, for submission to the Bureau of Local Government Supervision, as reference for the second round of verification.
- Step 4. Second Verification - the National and Regional Seal of Disaster Preparedness Teams undertake a second verification for cities, municipalities and provinces which garner an Index of 4 or above.
- Step 5. Distribution of Certificate of Recognition -a local government with a performance index of 4 or above, after second verification, receives a Certificate of Recognition.

Level 2 Assessment

- Step 1. Application from the DILG Regional Director -the conduct of Level 2 assessment in a municipality, city or province starts upon application of the DILG Regional Director. A local government must meet the following requisites as basis for application:

- . Passer of Level I Assessment

. Occurrence of a disaster, as declared by PAGASA

- Step 2. Assessment - a National Assessment Team is organized to conduct Level 2 assessment using the prescribed Data Capture Form. Generally, the assessment is based on interview of affected individuals, selected at random, and should cover at least 596 of the affected individuals. Interviewees are equally divided among the team members. Aside from the interview, observation and document review are to be factored in.
- Step 3. Result Calibration - the members of the Assessment Team convene and calibrate the results by getting the average of responses.
- Step 4. Preparation of the Disaster Preparedness-Response Index - using the automated template, the Assessment Team prepares the Disaster Preparedness-Response Index
- Step 5. Nomination for the Seal - the National Assessment Team, upon completion of Level 2 assessment, nominates a local government that passes the Disaster Preparedness-Response Index to the Bureau of Local Government Supervision.
- Step 6. Recommendation and Conferment of the Seal - the Bureau of Local Government Supervision recommends the nominated local government to the Secretary of Interior and Local Government for the conferment of the Seal.

Conferment of Certificate and the Seal

A local government that passes Level 1 Assessment receives a Certificate of Recognition. This Certificate is to be sent through official correspondence from the Secretary of Interior and Local Government

On the other hand, a local government that passes both Level 1 and Level 2 Assessments receives the Seal and Disaster Management Fund or Disaster Equipage.

Frequency of Assessment

Level 1 Assessment is done annually while Level 2 Assessment is undertaken when an actual disaster occurs.

Incentivizing Commitment to Disaster Preparedness

The Seal of Disaster Preparedness is linked to a Disaster Management Fund or Equipage Support, subject of a separate Guideline.

Implementing Mechanism

The Bureau of Local Government Supervision shall create a Seal of Disaster Preparedness National Team. Likewise each DILG Regional Office shall create a Seal of Disaster Preparedness Regional Team.

➤ ***Bakas Parangal***

NDRRMC Memorandum Circular No. 11 s, 2012 provides for the institutionalization of Bakas Parangal to recognize those who exhibited exemplary and extraordinary acts of bravery and heroism during calamities. The NDRRMC adopts and institutionalizes the grant of awards to groups or individuals for their outstanding display of valour and selfishness amidst the great peril brought by a disaster. Bakas Parangal is a Recognition of Merit and Token of Thanksgiving bestowed by the NDRRMC to individuals or groups who exerted exemplary and extraordinary acts of selflessness in reaching out to those who are in urgent need of assistance in times of calamities and disasters. This recognition will also serve as a reminder to the honouree and to others that their efforts were not done in vain, and that the Filipino people recognize what they have done and that they did not only saved lives but also changed lives. This very act of altruism will serve as an inspiration not only to the people they saved but also to others proving that heroes do exist in the homeland. BaKas comes from BAyaning LiKAS and Bayani means a Hero. Bayan connotes people, town or community and Likas is defined as inherent or innate to a person or community. Bakas is also attributed to its literal meaning which is an imprint or remarkable impression that an individual leaves to those whom they have saved, rescued or extended help and urgent assistance during calamities and disasters. Bakas Parangal shall be given by NDRRMC to eligible honouree/s who manifest exemplary and extraordinary acts of bravery and heroism after every calamity and disaster.

Categories:

Bakas Parangal has three categories for both individuals and organization namely Parangal ng Kadakilaan, Parangal ng Kabayanihan and Parangal ng Kagitingan.

Category I – Bakas Parangal ng Kadakilaan is bestowed to honor the noble service of units or groups and organizations who participated in the rescue efforts despite the obvious hardships of the situation. The honouree group will be given a Plaque of Recognition acknowledging its participation and noble deed during calamity.

Category II – Bakas Parangal ng Kabayanihan is granted to the leader of a unit/group that exhibited exemplary acts of heroism beyond their call of duty, upholding the core values of their responsibility to reach out to those in need in times of disasters. The honouree will be bestowed with a Plaque of Recognition for the leader of a unit/group accompanied by a certificate of recognition for the members of the unit/group.

Category III – Bakas Parangal ng Kagitingan is given to individuals who exhibited extraordinary acts of bravery by extending assistance to those in need in times of disaster beyond the call of duty with a full understanding that such a volition has dire consequences to their person or ultimately their life. The honouree/s will be bestowed with Bronze Medalyon ng Kagitingan accompanied by a certificate of recognition.

Basic Qualifications/ Requirements

Any individual or groups/organization is eligible to award provided that the nomination will include testaments to their acts of bravery and heroism during calamities and disasters. The candidates should be bonafide participant/s in the search, rescue and relief operation in response to calamity or disaster. If the candidates are government officials, a recommendation should be made by the immediate supervisor and Head of the government agency, narrating such exemplary or extraordinary act performed in search, rescue or relief operations. If the candidates are non-government officials, the recommendation should then be made by any Local Government Official including Barangay Official. The recommendation should be filed a the NDRRMC not later than six months after the occurrence of a disaster or calamity. Any identification issued by a government institution which states the candidate's full name, address and date of birth. Investigation should be conducted by an OCD official on the following 1) candidates' personal background: and (2) details narrated on the candidate's recommendation.

An Assessment/Review Panel composed of representatives from DND, OCD and church-based organizations shall be created to assess and review the information submitted and therefore have the authority to deny or approve the candidate's merit for the granting of the award. The Department of National defense will issue the corresponding Department Order for the creation of the Disaster Awards Committee.

The insignia which will be given as part of the award speaks of the rescuers who go through

tremendous lengths to save lives. As in the case of flooding, they often have to go through darkness, intense rain, and mud with limited rescuers just to reach those who are in need. It was thus conceived that footprints on mud would best symbolize the extreme hardship rescuers have to endure, putting their very lives on the line and going barefoot if they have to, just to save a fellow human being. The rope which surrounds the circumference of the medal, represents the many uses of rope in rescue and response operations. The footprints are shown as pointing downwards (or outgoing), signifying that it is the footprints that belong to the awardees. Furthermore, the footprints symbolize how the heroic occurrence left an imprint on the lives of those who were rescued, a lasting mark which says there are those in his world who are willing to risk life and limb to save the lives of others. For an appurtenance or a device added and attached to the basic decoration to distinguish each deed and succeeding deeds of achievements falling under the same category of the decoration. Instead of awarding the same decoration and service medal, an appurtenance is substituted for the medal. The Service Star appurtenance is further categorized into Bronze, Silver and Gold.

The Bronze Star shall be awarded and affixed on the medal for each succeeding response mission and/or major disaster operations. The Silver Star is given instead of the fifth Bronze Star, and shall be affixed on the medal for every fifth succeeding response mission and/or major disaster operations. The Gold Star shall be awarded in place of the fifth Silver Star. The Platinum Star shall be awarded in place of the fifth Gold Star and the Diamond Star shall be awarded in place of the fifth Platinum Star.

E. Examples of Good Practices in Community-based DRRM in the Philippines

➤ Municipality of San Jose de Buenavista, Province of Antique

San Jose de Buenavista, or San Jose, is the provincial capital of the province of Antique. It is located in the southern part of the province, fronting Sulu Sea and South China Sea. Its geographic location makes it susceptible to the threats of both natural and human-induced hazards.

The Municipal Disaster Risk Reduction and Management Office (MDRRMO) of San Jose has identified 12 different hazards in the locality and ranked them according to probability of occurrence. These are: (1) Typhoon; (2) Earthquake; (3) Storm Surge; (4) Monsoon Rain; (5) Landslide; (6) Drought; (7) Flash Flood; (8) Fire Incident; (9) Tsunami; (10) Vehicular Incidents; (11) Disease Outbreak; and, (12) Tornado. In the latest risk assessment

conducted by the MDRRMO, almost all constituent *barangays* (communities) of San Jose are vulnerable to weather related hazards like typhoons and monsoon rains. Typhoon winds put 12,966 individuals or 2,161 families at risk, in 26 out of 28 *barangays*.

With major river systems dissecting the town, San Jose experiences annual bouts with flood and siltation. Forest degradation in upland and watershed areas intensifies the severity of these threats. Siltation poses an added problem as it buries natural sources of spring water for drinking and irrigation. Fifteen *barangays* have been identified to be susceptible to flooding with 4,830 individuals or 850 families at risk. Storm surge brought about by strong winds is pronounced in 14 coastal *barangays*, putting 3,075 individuals or 512 families at risk.

The municipality also contends with the risk of earthquake, landslide and tsunami because it is sandwiched by an active inland and undersea earthquake generating fault and trench with potential to trigger high magnitude earthquakes. A total of 13,695 individuals or 2,283 families in 27 *barangays* have medium to high risk exposure to earthquakes. At least five *barangays* are in jeopardy to landslides that could be earthquake or rain induced, due to their sloping and elevated topography, exposing 665 individuals or 111 families. Offshore earthquakes that can trigger tsunamis threaten 19 coastal and the low-lying *barangays* or a total 14,428 individuals or 2,405 families.

Processes that accompany urbanization including high population growth rate, rapidly expanding built environment, in-migration and congestion due to informal settlements are identified as sources of fire hazards. There are 14 *barangays* with known impuissance to fire, most especially in areas that host Cebuano and Moslem migrants where congestion is rampant. A total of 5,712 persons or 952 families are exposed to fire hazards.

Climate variabilities are expected to affect San Jose as well. Observed precipitation increases exacerbate flooding concerns which could be further heightened by continues degradation of watershed areas. Intense flooding events could potentially result to food insecurity, heavy siltation, destruction of investments and displacement of communities. Drought and El Nino events threaten agriculture through decreased yields and reduced water supply for irrigation.

Mandates coming from the national government, particularly Presidential Decree (PD) 1566 (1978) and Republic Act 10121 (2010) inform DRRM initiatives in San Jose. PD 1566

defined the management system for disasters throughout the Philippines from 1978 until 2010 when Republic Act (RA) 10121 was passed into law. DRRM is an ongoing program of the local government unit (LGU) and its approach has evolved from predominantly response and relief to one that gives greater emphasis on disaster preparedness, prevention and mitigation. This is reflective of policy changes happening at the national level and the urgent demand to enhance mechanisms for disaster preparedness. DRRM values proactivity, multi-sectoral participation and community orientation.

Prior to 2010, the town's Municipal Disaster Coordinating Council (MDCC) had been a vigorous advocate of disaster management, even though its focus was largely on emergency response. It consistently supported communities and groups affected by disasters, and was instrumental in organizing the Barangay Disaster Coordinating Councils (BDCCs) in 28 constituent *barangays*.

The imminent threat of multiple hazards prompted the LGU to invest in DRRM. As early as 2004, a resolution endorsed by the MDCC and passed by the Sangguniang Bayan (SB) declared the municipality in a *State of Imminent Danger*. This allowed the MDCC to utilize the Calamity Fund (CF) for pre-disaster activities, like training of *barangay* officials and volunteers, and information dissemination to vulnerable sectors. It was a groundbreaking move as Calamity Funds then were used customarily for post-disaster response activities. Tropical Depression (TD) Frank in 2008 further pushed the LGU to improve the systems for disaster preparedness, prevention and mitigation. The experience spurred a reassessment of the LGU's capabilities, resulting to a modification in the structure of the MDCC (through Executive Order 01 issued by Mayor Rony L. Molina in January 2010) that added the task units of Occupational Safety and Records and Archives Protection. In July of the same year, he issued EO 58 to replace MDCC members who lost during the May 2010 elections. While the MDCC was dynamic and consistently active in providing necessary training and information on disaster management, it was constrained by the prevailing response oriented practice that gave greater weight on emergency response and relief, and inhibited activities for risk reduction and management. Furthermore, the meagre 5% CF allocation posed challenge to efforts for pursuing preparedness, prevention and mitigation agendas.

The passage of RA 10121 in 2010 initiated major changes in the management of disaster risks in San Jose. Foremost, the law was responsible for the organization of the Municipal Disaster Risk Reduction and Management Council (MDRRMC), which replaced the MDCC. This was done through EO 186 signed by Mayor Molina in October 2010. The MDRRMC, or

the Council, functioned as the platform for DRRM programming in the municipality. Its creation was predicated by RA 10121 and on the need to strengthen the LGU's capability for risk reduction as the changing nature and characteristics of hazards overtake reactive disaster management systems that do little to enhance preparedness and alleviate vulnerability. RA 10121 provided for a more liberal budgetary allocation for DRRM through the Local Disaster Risk Reduction and Management Fund (LDRRMF) which was no longer limited to the 5% ceiling set by PD 1566. In 2010, PhP 2.5 million was allocated for the LDRRMF. As mandated by law, 30% of this was earmarked for quick response and emergency related concerns and the remaining 70% was set aside for pre-disaster activities and programs. The law was also instrumental in reorienting the previously reactive approach to disasters of the MDCC into the more proactive approach of the MDRRMC. The incumbent Council now has substantial muscle for pre-disaster activities to enhance disaster preparedness and risk reduction capabilities.

The participation of private agencies and non-government organizations (NGOs) in the Council is enlisted in accordance with the mandates of RA 10121. The provisions of RA 729 (Climate Change Act of 2010) are integrated into the plans and programs particularly in the aspect of the disaster mitigation and prevention.

The Council continues to intensify its efforts to bring DRRM to the communities using the *Community-Based Disaster Risk Reduction and Management (CBDRRM)*. CBDRRM enhances the capability of local communities through capability building. This is done together with mobilization and training of municipal and community volunteers. The cultivation of the spirit of volunteerism is one of the badges of success of the Council because it serves as a venue for different stakeholders to work together harmoniously.

Collaboration and convergence are hallmarks of DRRM programming in San Jose. From the multifarious activities that the MDRRMC has carried out since its establishment, four interrelated components can be gleaned leading to an integrated, holistic and sustainable DRRM. These are (1) disaster mitigation and prevention, (2) disaster preparedness, (3) emergency response, and (4) recovery and rehabilitation. At the helm of these activities is the MDRRMO, the implementing arm for DRRM, together with members of the Council including civil society organizations, volunteer groups and community organizations. How the MDRRMC leads in promoting a culture of safety and resiliency in San Jose.

➤ ***Chamber Volunteer Fire Brigade***

As the largest volunteer emergency response organization in the most populous city in Western Visayas, the Bacolod Chamber Volunteer Fire Brigade is in a unique position, both in terms of expectations and achievements, among private/volunteer organizations in the region. The “Brigade”, as it is popularly called, is the service delivery arm Bacolod Filipino-Chinese Chamber of Commerce and Industry, Inc. (BFCCCII). Originally conceived in 1970s as a volunteer group to augment the manpower of the local fire department, it became a full-fledged firefighting unit that earned distinction (including a Presidential Citation) and would transition into an accredited organization that offers fire suppression, search and rescue, emergency medical services and community outreach programs.

The Bacolod Chamber Volunteer Fire Brigade’s key strengths as an organization are: 1) Multi-level partnerships and, 2) Well-established disaster response practices and protocols. While it remains essentially private and voluntary in character, the organization has strong ties with the local community, corporate entities, the City and Provincial Government, national government agencies up to international level. These strong ties are valuable networks of logistics and funding, as well as sources of information, and has enabled the Brigade to grow into a membership of three hundred twenty-eight (328) strong. The organization also had a clearly-defined and recognized role vis-à-vis government agencies with analogous functions (Bureau of Fire, Bacolod City Emergency Response Unit etc.). By virtue of more than three decades of experience of responding to disasters, the Brigade has established practices and protocols in the conduct of emergency disaster response. The emergency response protocol directs the flow of personnel and resources and ensures that services are delivered in timely, orderly and appropriate manner. Its personnel go through a thorough recruitment and training process. Between 2008 and 2010 alone, the Brigade was able to respond to 205 fire calls, 13 rescue operations and 651 emergency medical and trauma cases. This underscores the importance of the organization’s role in disaster response in Bacolod City and its surrounding areas. However, challenges brought about by climate change necessitate a shift in the role of the Brigade from an organization that is primarily oriented towards response into an organization that is actively involved with the local government and the community in reducing risk and building resiliency.

The Bacolod Chamber Volunteer Fire Brigade was conceived under the slogan of “We Do Care. We Do Share”. The Brigade envisions itself as a pillar in nation-building by promoting

the spirit of volunteerism. As an organization, it seeks to become an internationally recognized volunteer organization that: 1) exceeds industry standards in firefighting and rescue; 2) provides timely and technologically advanced pre-hospital care, and 3) engages in wide-scale Medical Outreach Programs and civic works through committed and highly competent volunteers.

➤ ***Cabasi-Sta. Rosa Elementary School***

Cabasi-Sta. Rosa Elementary School (CSRES) in Barangay Sta. Rosa-Laguna, in the Municipality of Guimbal, Province of Iloilo is the country's *Gawad KALASAG's* Best Educational Institution advocating disaster risk reduction management for the years 2010 and 2011.

The school's critical resources and development efforts to mitigate the potential impact of natural or man-made disasters in the school community are presented in this paper. Although efforts are primarily schoolchildren-centered and schoolchildren-driven as schools are mandated to ensure the safety and welfare of schoolchildren, benefits to the larger school community can be derived as engagement of parents, barangay officials, the Local Government Unit (LGU) and other stakeholders are elicited. Besides, the school dreams to achieve not only a prepared and resilient school but prepared and resilient neighbouring communities as well as a result of an improved school disaster risk reduction management system.

Apart from the school gym that can be utilized as temporary shelters in any emergency, CSRES has 12 clean, wall-finished, and well-ventilated school buildings with spacious corridors, railings/handrails and ramp. The rooms in these buildings have safe electrical connections as per Bureau of Fire Protection (BFP) standard, inspections of which were conducted in 2009 and 2010. Rooms also have toilet and water facilities that are regularly maintained by the school community. The school has five radio cassettes, a mini karaoke, four units of computer and a printer that can be utilized for monitoring, receiving and disseminating vital/critical information (e.g., news, weather updates, supply information) to the school and the CSRES community. Basic health facilities such as two nebulizers, two body temperature and a sphygmomanometer are also utilized and maintained by the school.

CSRES, like any other primary academic institution, has a Parents-Teachers Association

(PTA) organized with special committees, namely finance, audit, election, ways and means, grievance and more importantly, external and community affairs which reflect not only a working system but also a consistent effort to work with the people in the community. The CSRES pupil population is increasing throughout the four years with 593 as the highest composed of 518 regular classes, 57 preschoolers and 18 special education class for the school year 2011-2012. The school has 21 faculty and staff that consists of a School Principal, 17 permanent teachers, one male utility worker and two female teachers paid by the national government and local school board. For four school years, school administrators received distinction from the Division of Iloilo as outstanding administrators while CSRES is considered as the most effective non-central school in the division of Iloilo for seven school years, a manifestation of the enthusiasm, confidence and growth of the school community.

Our forbears overcame a myriad of challenges and each time, they arose even more robustly than before. – Prime Minister Shinzo Abe, March 11, 2013

V. Institutionalizing Disaster Risk Reduction in Japan

A. Japan Disaster Management System

Japan has a long history of dealing with disasters way back 416 August on the occurrence of Yamato-Kochi Earthquake as stated in the first written record of Earthquake in Japan in “Nihonshoki” or the first official history book of Japan, edited in 8th century. Nihonshoki also



The Japanese traditional drawing “Ukiyoe” 150 years ago which depicts Edo (old name of Tokyo) people beating a big monster fish which was believed to cause earthquakes under the earth.

shows the first written record of Earthquake Tsunami on 684 November with the occurrence of Hakuho-Nankai Tonankai Earthquake with an estimate magnitude of 8.2-3. Dealing with disasters had become the subject of their art as depicted in the paintings after the 1855 Ansei-Edo Earthquake.



How the Japanese deal and manage with risks is also shown in the painting especially during the reconstruction period following the 1855 Ansei-Edo Earthquake.

Management of disaster risks was viewed as an opportunity for development.

This painting shows that citizens knew that someone was making profit out of tragedy.

The most popular is the story of Ina mura no hi about a Japanese man named Hamaguchi Goryou who saved his villagers in Hiro-mura (currently Hirogawa-cho) from a massive tsunami struck the Kii Peninsula district in 1854 (Ansei 1) after a strong earthquake occurred. The story portrays Goryou who set fire to some 'inamura' (rice sheaves) and evacuated the villagers to a high safe place by guiding them using the fire as a landmark. This story is being used to educate the present generation about tsunami.



There is also an earliest record of the Japanese bitter encounter of tsunami in 1896 when the Meiji Sanriku Earthquake occurred which resulted to 22,000 deaths. This experience was also depicted in one of their traditional paintings.

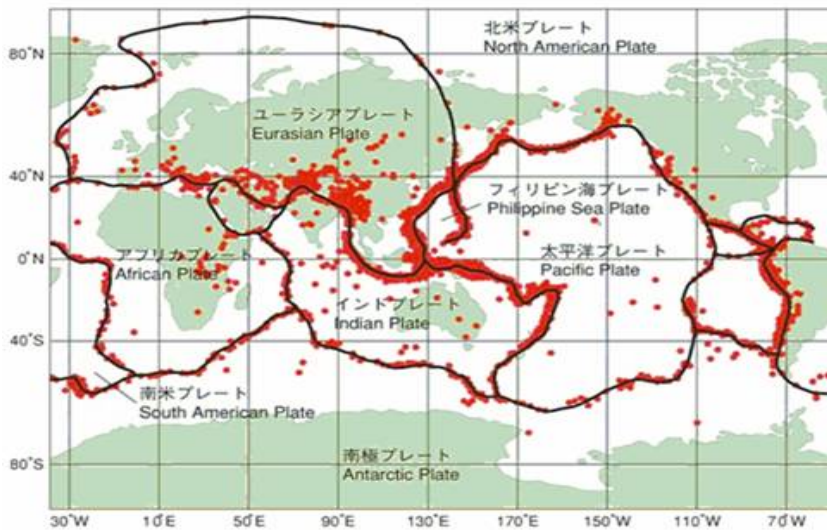


➤ **National Disaster Management System**

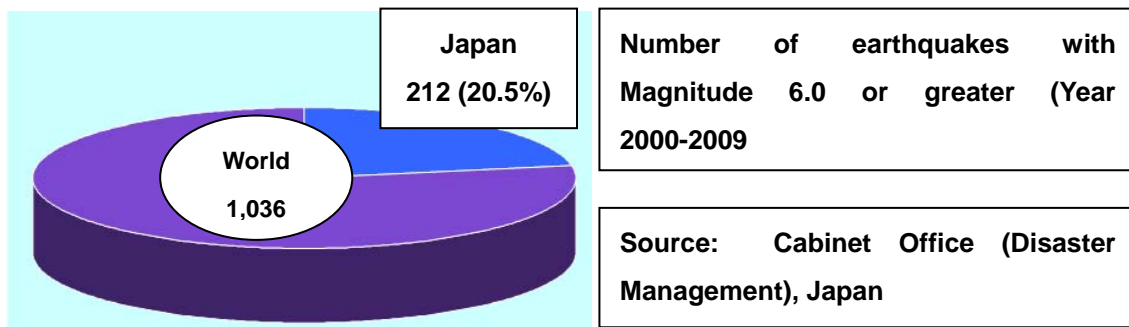
Japan is a disaster prone country because of it is located in the circum-Pacific area where seismic and volcanic activities occur constantly. The country experience a wide variety of natural disasters such as earthquakes, tsunamis, volcanic eruptions, typhoons during the months of July to October, heavy monsoon rains from May to July, floods,

landslides and snow avalanches.

Records show that with the number of earthquakes with magnitude 6.0 or larger from 1995-2004, Japan shares 22% or 210 occurrences out of 945 earthquake occurrences in the



world.



The progress of disaster management and system in Japan is defined by the bitter experiences from the large scale natural disasters and accidents with loss of lives and immense damage to properties. Countermeasures against any disaster are taken according to the Disaster Countermeasure Basic Act in 1961 and other related disaster management laws or basic acts such as Act on Prevention of Marine Pollution and Maritime Disaster (1970), Act on Disaster Prevention in Petroleum Industrial Complexes and other Petroleum Facilities (1975), Act on Special Measures for Large-scale Earthquakes (1978), Act on Special Measures for Nuclear Disasters (1999), Act on Special Measures for Promotion of Tonankai and Nankai Earthquake Disaster Management (2002), Act on Special Measures for Promotion of Disaster Management for Trench-type Earthquakes in the Vicinity of the Japan and Chishima Trenches (2004). Countermeasures taken against a disaster are also guided by the following disaster

prevention and preparedness related laws: Erosion Control Act (1897), 2. Building Standard Law (1950), Forest Act (1951), Act on Temporary Measures for Disaster Prevention and Development of Special Land Areas (1952), 5. Meteorological Services Act (1952), 6. Seashore Act (1956), Landslide Prevention Act (1958), Act on Special Measures for Disaster Prevention in Typhoon-prone Areas (1958), Act on Special Measures for Heavy Snowfall Areas (1962), River Act (1964), Act on Prevention of Steep Slope Collapse Disaster (1969), Act on Special Measures for Active Volcanoes (1973), Act on Special Financial Measures for Urgent Earthquake Countermeasure Improvement Projects in Areas for Intensified Measures (1980), Act on Special Measures for Earthquake Disaster Countermeasures (1995), Act on Promotion of the Earthquake-proof Retrofit of Buildings (1995), Act on Promotion of Disaster Resilience Improvement in Densely Inhabited Areas (1997), Act on Promotion of Sediment Disaster Countermeasures for Sediment Disaster Prone Areas (2000), Specified Urban River Inundation Countermeasures Act (2003). For specific disaster response countermeasures, disaster emergency response related acts such as Disaster Relief Act of 1947, Fire Services Act of 1948, and Flood Control Act of 1949 are implored for guidance and implementation. For disaster recovery and reconstruction as well as financial measures, these related laws are abided for implementation: Forest National Insurance Act (1937), Agriculture Disaster Compensation Act (1947), Housing Loan Corporation Act (1950), Act on Interim Measures for Subsidizing Recovery, Projects for Agriculture, Forestry and Fisheries, Facilities Damaged Due to Disasters (1950), Small-Medium Business Credit Insurance Act (1950), Act on National Treasury Share of Expenses for Recovery Projects for Public Civil Engineering Facilities Damaged Due to Disasters (1951), Public Housing Act (1951), Fishing Boat Damage Compensation Act (1952), Agriculture, Forestry and Fisheries Finance Corporation Act (1952), Railway Improvement Act (1953), Act on National Treasury Share of Expenses for Recovery of Public School Facilities Damaged Due to Disasters (1953), Act on Interim Measures for Financing Farmers, Woodsmen and Fishermen Suffering from Natural Disasters (1955), Airport Improvement Act (1956), Small-scale Business Equipment Installation Financial Support Act (1956), Act on Special Financial Support to Deal with Extremely Severe Disasters (1962), Fisheries Disaster Compensation Act (1964), Act on Earthquake Insurance (1966), Act on Special Financial Measures for Group, Relocation Promotion Projects for Disaster Mitigation (1972), Act on Payment of Solatia for Disasters (1973), Act on Special Measures for Reconstruction of Disaster-stricken Urban Areas (1995), Act on Special Measures for Reconstruction of Jointly Owned Buildings in Disaster-stricken Areas (1995), Act on Special Measures for Preservation of Rights and

Profits of the Victims of Specified Disasters (1996), Act on Support for Livelihood Recovery of Disaster Victims (1998).

The comprehensive disaster management system in Japan is fully established with the enactment of Disaster Countermeasure Basic Act in 1961 prompted two years later after the occurrence of Ise-wan Typhoon in 1959 which brought immense damage to the country. The Ise-wan Typhoon which claimed 5,098 lives was considered as the turning point for strengthening disaster management system in Japan. The Japan Disaster management System has been further strengthened following the many lessons learned from large-scale disasters such as the Great Hanshin Awaji Earthquake. During our visit to the Cabinet Office (Disaster Management) on February 26, 2013, we have learned that important revisions on the Disaster Countermeasure Basic Act will be finalized soon banking on the lessons learned from the March 11, 2011 Great East Japan Earthquake which resulted to 20,000 deaths and missing and ¥16.9 trillion (\$210 billion) estimated damage to the country's economy.

Meanwhile, Japan's disaster management system addresses all the disaster risk management phases such as prevention and mitigation, preparedness, response and recovery and reconstruction. The Disaster Countermeasures Basic Act defines the responsibilities of key players for disaster management, the organizations, and the planning system, disaster prevention and preparedness, emergency response, recovery and rehabilitation, as well as financial measures implored in managing and responding to disasters and the guidelines on the declaration of a state of emergency.

The institutionalization of an outstanding disaster management system and practice in Japan starts from the national level down to the residents level. At the national level starting from the Prime Minister to Central Disaster Management Council and designated government organizations and public corporations, formulation of Basic Disaster Management Plan and Disaster Management Operation Plan and promotion for their implementation are initiated and institutionalized. At the prefectural level with the governor to the Prefectural Disaster Management Council, designated local government organizations and designated public corporations, formulation and promoting the implementation of Local Disaster Management Plan is institutionalized. At the municipal level starting from the mayors of cities, towns and villages in Japan, together with the Municipal Disaster Management Council, the formulation and promoting of the implementation of Local Disaster Management Plan is institutionalized.

The residents are encouraged to be protected in the spirit of mutual help with the different stakeholders. There are 23 ministries and agencies as designated government organizations that play an important role in the implementation of the Disaster Countermeasures Basic Act while there are 63 organizations or designated public corporations including independent administrative agencies, Bank of Japan, Japanese Red Cross Society, Nippon Hoso Kyokai (NHK), electric and gas companies and Nippon Telegraph and Telephone (NTT) that likewise play a significant role.

It was only in 2001 when the post of Minister of State for Disaster Management was newly established to integrate and coordinate disaster reduction policies and measures of all ministers and agencies concerned. The Cabinet Office is responsible for securing cooperation and collaboration among related government organizations. The Director-General for Disaster Management conducts overall coordination and is mandated to undertake the planning of basic disaster management policies and response to large-scale disasters. Taking into account the lessons learned from the Great Hanshin-Awaji Earthquake, the Cabinet Secretariat System was likewise strengthened and the Deputy Chief Cabinet Secretary for Crisis Management was appointed. A Cabinet Information Collection Center to strengthen risk management functions to address emergencies, large-scale disasters and serious accidents. The cabinet Office has a crucial role in supporting the Cabinet Secretariat in matters of disaster management.

The Central Disaster Management Council is established in the Cabinet Office based on the Disaster Countermeasure Basic Act. The Council is chaired by the Prime Minister and the members consist of Minister of State for Disaster Management, all ministers, heads of major public institutions and experts. The council promotes comprehensive disaster countermeasures and tackle important issues on disaster reduction upon the request of the Prime Minister or Minister of State for Disaster management.

Management Planning System

- ◆ Basic Disaster Management Plan: This plan is a basis for disaster reduction activities and is prepared by the Central Disaster Management Council based on the Disaster Countermeasures Basic Act.
- ◆ Disaster Management Operation Plan: This is a plan made by each designated

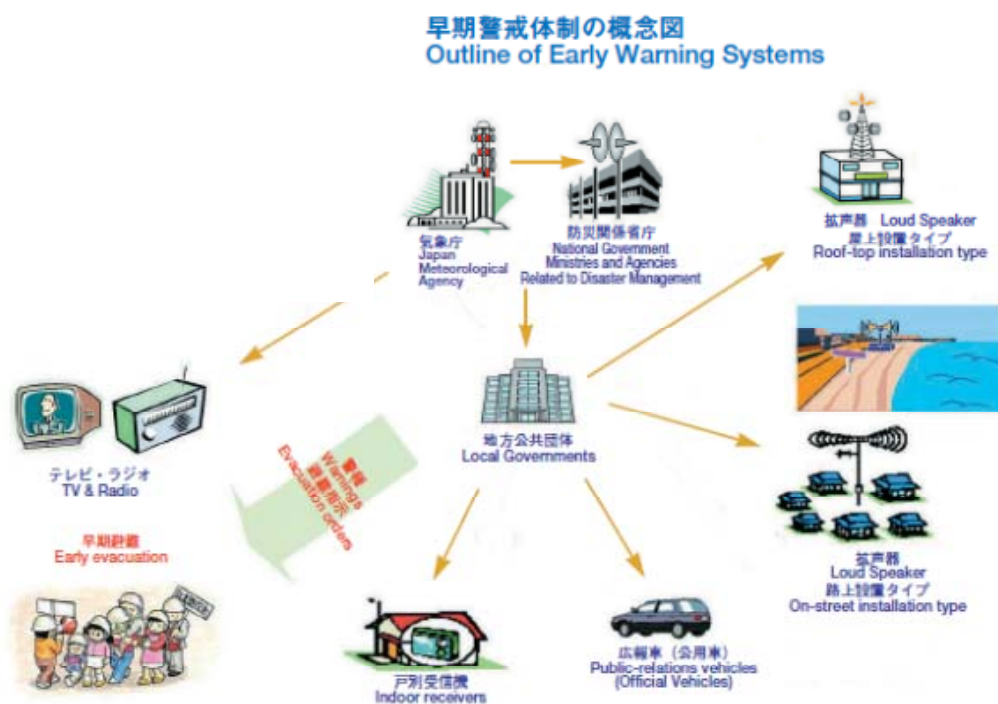
government organization and designated public corporation based on the Basic Disaster Management Plan.

- ◆ Local Disaster Management Plan: This is a plan made by each prefectural and municipal disaster management council, subject to local circumstances and based on the Basic Disaster Management Plan.

The national budget for disaster management is approximately 4.5 trillion yen based on the average annual budget from 1995 to 2004. The budget is allocated to Scientific Technology Research with 1.3%; Disaster Prevention and Preparedness with 23.6%; National Land Conservation with 48.7%; and Disaster Recovery and Rehabilitation with 26.4% of the total budget. On research and development, the Science and Technology Plan - Third Term (2006) sets 10 important issues on disaster reduction for its implementation strategy. The plan also describes Japan's basic scientific technology policies which set a major goal in making Japan a country that can take pride in being the safest in the world. The plan also sets an intermediate goal of ensuring the security of national land, society and people's livelihoods. The research and development on Earthquake Early Warning (EEW) and information has been promoted by the Japan Meteorological Agency since 2006 in cooperation with related organizations, and the provision of EEW information to specific entities such as railway companies. The EEW information announces the estimated hypocenter and magnitude of an earthquake as well as the estimated arrival time of the S-wave of the earthquake and seismic intensity in such area. This information is made possible by detecting the P-wave near the epicenter and immediately processing the data since there is a difference in the speed of the P-wave, which arrives faster, and the S-wave which arrives later and causes more severely destructive phenomena. In the case of a large scale ocean trench-type earthquake, there may be a time lag of several seconds to several tens of seconds, between the issuance of the EEW information and the start of severe shaking when the S-waves arrives. This can be a critical time to be used for mitigating damage by stopping trains and elevators, extinguishing flames or crawling under tables.

For disaster prevention and preparedness, the national land conservation projects such as river improvement, soil erosion control (sabo), and soil and coastline conservation are carried out strategically for protecting national land, citizen's lives and property from various disasters. The "Selective Infrastructure Improvement Plan" was set forth in 2002 to promote prioritized effective and efficient infrastructure improvement projects.

The “Forest Improvement and Conservation Works Master Plan” was formulated in 2003 to promote comprehensive and effective forestry improvement and soil conservation projects. Likewise, in observing, forecasting and warning of disaster risks, observation systems that can accurately detect disaster risks in real-time have been progressively improved for establishing early warning systems, supporting the early evacuation of residents, and response activities of disaster management organizations thereby reducing disaster damage. The Japan Meteorological Agency (JMA) carefully monitors various natural phenomena and weather conditions in a 24-hour system. The JMA also issues a wide range of forecasts, warnings and advisories regarding earthquake-generated tsunamis and severe weather events such as heavy rains.



A quick and accurate communication system is essential for effective use of early warning information thus, the JMA has built an online system linking disaster management organizations of the national and local governments and media organizations. Radio communications networks exclusively for disasters have been developed through the Central Disaster Management Radio Communications System which connects national organizations; the Fire Disaster Management Radio Communications System which connects firefighting organizations all over Japan; and prefectural and municipal disaster management radio communications systems which

connect local disaster management organizations and residents. The Cabinet Office has developed a Central Disaster Management Radio Communications System so that designated government organizations and public corporations can use telephones or facsimiles via a hotline. It has also prepared an image transmission circuit so that pictures of disaster situations can be transmitted from helicopters in real-time. As a back-up for terrestrial communications, a satellite communications system has also been constructed. Simultaneous wireless communications system using outdoor loudspeakers and indoor radio receivers are used to disseminate disaster information to the residents. Tsunami and severe weather warnings are widely provided to citizens via TV and radio broadcasts.

An integrated disaster management information system has been developed by the Cabinet Office in order to help grasp the situation of the disaster early on and promotes information sharing among relevant organizations for a quick and appropriate decision-making for emergency response operations. There is a DIS or Earthquake Disaster Information System which is automatically activated upon the receipt of earthquake information with intensity level of 4 or higher from JMA. This is intended to estimate the approximate distribution of seismic intensity and scale of damage within 30 minutes. The RAS or Real Damage Analysis System by Artificial Satellite uses satellite images to assess actual disaster damage when it is otherwise difficult to determine the situation due to the disruption of transportation and communication networks. There is also a common information sharing system with a standardized information format called PF or Disaster Information Sharing Platform where various disaster information which are provided by ministries and agencies, local governments, relevant organizations and residents can be posted and accessed by all.

In order to secure a wide-area collaboration for a quick and smooth response and recovery and rehabilitation activities in case of a large-scale disaster, disaster management bases for information management, operations coordination, and logistics needs and network are set up. It is noted that the Cabinet Office is constructing main wide-area disaster management bases in cooperation with relevant ministries in Tokyo and Kanagawa in Tokyo Bay area to function as core bases for responding to large-scale disaster in the Tokyo Metropolitan Area. Subsidies are likewise provided to local governments who promote qualitative and quantitative improvements of local disaster management bases.

When a disaster occurs or is imminent, it is advised that residents may start evacuating on their own. The mayor of the municipality may also issue an evacuation order or instruction. However, it is effective for municipalities to prepare beforehand, a manual explaining the criteria regarding disaster situations that require the issuance of evacuation orders or instructions which would help the mayor to decide quickly in times of disasters or emergencies. The Cabinet Office, in cooperation with relevant ministries, published the “Guidelines for Producing a Decision and Dissemination Manual for Evacuation Orders and Instructions” in 2005.

Measures for People Requiring Assistance during Disasters have been undertaken by the Cabinet Office in 2005 with the publication of the “Guidelines for Evacuation Support of People Requiring Assistance During Disaster” to be implemented at the municipal level. This is in view of the aging society and the increasing number of the elderly being killed or injured by disasters and with considerations for assistance to physically impaired and to those who require special assistance. The guidelines contain i) improving the information communication system; ii) sharing of information concerning people requiring assistance during disaster; iii) creating a tangible evacuation support plan for them; iv) assistance at the evacuation centers; and v) collaboration among related organizations. Tangible countermeasures include the issuance of information regarding the early evacuation of people requiring assistance and sharing such information among related disaster management and social welfare organizations.

In order to promote various drills and exercises nationwide, the Central Disaster Management Council sets forth an annual “Comprehensive Disaster Reduction Drills Plan,” that stipulates the basic principles for executing the drills and outlines the comprehensive disaster reduction drills carried out by the national government in cooperation with local governments and relevant organizations. September 1st is the Disaster Reduction Day in Japan and wide-area, large scale disaster reduction drills are conducted in every region across the country in collaboration with disaster-related organizations. In recent years, practical method of disaster reduction drill like impromptu role-playing was introduced but participants are not given any information beforehand.

On disaster response, the national government collects disaster information at the Cabinet Information Collection Center 24 hours a day, and at the time of large-scale disaster, the designated emergency response team comprised of the director-generals

of the respective ministries and agencies gather immediately at the Crisis Management Center in the Prime Minister's Office to grasp and analyze the disaster situation and report to the Prime Minister. Inter-ministerial meetings at the ministerial or high-ranking senior official level are held to decide basic response policies if necessary. Depending on the level of the damage, the government may establish a Major Disaster Management Headquarters, headed by the Minister of State for Disaster Management, or an Extreme Disaster Management Headquarters headed by the Prime Minister. A government investigation team headed by the Minister of State for Disaster Management may be dispatched, or an on-site disaster management headquarters may be established.

In the case of large-scale disasters that exceed the response capabilities of the affected local government, various wide-area support mechanisms are mobilized the National Police Agency (Inter-prefectural Emergency Rescue Unit), Fire and Disaster Management Agency (Emergency Fire Rescue Team), and Japan Coast Guard. The Self-Defense Forces can be dispatched for emergency response activities upon request from the governor of the affected prefectural government. A wide-area medical transportation system for dispatching disaster medical assistance teams (DMAT) and ambulance parties for transporting seriously injured people to disaster management base hospitals outside the disaster-stricken area is being developed.

The recovery and rehabilitation of disaster-stricken areas focuses on providing support to help rebuild the normal livelihoods of the affected population as quickly and smoothly as possible. Restoring public facilities while giving consideration to mitigating future disasters so that affected communities can be made more resilient and have fundamental conditions for sustainable development. In the case of the Great Hanshin-Awaji Earthquake in 1995, integrated reconstruction measures with multi-sectoral collaboration were employed through the establishment of the Headquarters for Reconstruction of the Hanshin-Awaji Area headed by the Prime Minister. This was followed by the establishment of an Inter-Ministerial Committee for Reconstruction of the Hanshin-Awaji Area in 2000. The Mt. Usu Eruption in 2000 and the Niigata-ken Chuetsu Earthquake in 2004 prompted the establishment of inter-ministerial recovery and rehabilitation committees where ministries and agencies work together on disaster recovery and rehabilitation, taking into account the opinions of those in the disaster-stricken areas thus, community participation was highly observed. Livelihood support system for disaster victims is implemented as guided by the Act on

Support for Livelihood Recovery of Disaster Victims in 1998. According to this Act, funds of up to one million yen per household, for buying necessary household goods and belongings are available, subject to given circumstances, to victims whose houses are severely damaged by a natural disaster and who have great difficulty in restoring their self supporting livelihoods due to economic and other reasons. The Act was further revised in 2004 to include the establishment of a support system for ensuring stable residences with assistance of up to two million yen to stabilize living conditions such as tearing down collapsed houses. The system is later on applied for cases of damage assessment of houses inundated by flood. To a larger extent, there are eight major areas covered by the disaster recovery and rehabilitation measures. 1) On disaster recovery project, the recovery of damaged public infrastructure facilities, educational facilities, welfare facilities, agricultural, forestry, and fishery is either conducted directly by the national government or put into practice by the local government with subsidies from the national government; 2) on disaster relief loans, persons engaged in the agriculture, forestry, or fishery industries, small and medium enterprises and low-income people who incurred damage are eligible for a variety of low-interest loans and more generous conditions; 3) on disaster compensation and insurance, affected persons engaged in agriculture, forestry or fishery business can obtain compensation for disaster losses through the earthquake insurance system which has been established by the national government; 4) on tax reduction measures, affected persons, there are measures for reduction, exemption, and postponed collection of income and residential taxes; 5) for affected local governments, there are measures for delivery of special tax allocations and permission to issue local bonds; 6) for extremely severe disasters, there are special measures to be taken for disaster recovery projects; 7) assistance for the rehabilitation plan of local governments are provided when necessary; and 8) support for the livelihood recovery of disaster victims for supporting their self-supporting efforts are provided through disaster condolence money, disaster impediment sympathy money, money for support of livelihood recovery of disaster victims and loans such as disaster relief funds and livelihood welfare funds.

On a more proactive stance, several earthquake countermeasures against large earthquakes have been formulated such as the Countermeasures against Tokai earthquake, Tonankai and Nankai Earthquakes, Trench-type Earthquakes in the vicinity of Japan and Chisima Trenches, and Tokyo Inland earthquakes.

The Central Disaster Management Council drafted an Urgent Countermeasures

Guidelines for Promoting the Earthquake-proofing of Houses and Buildings in 2005 which states that earthquake-proofing throughout the country should be urgently and strongly enforced in cooperation with related ministries as a national priority. The subsidy system that provides financial support to promote earthquake proofing diagnosis and retrofit has been expanded with tax reduction measures to promote earthquake proofing retrofit of residences and commercial buildings.

Tsunami countermeasures have been established with the JMA to issue tsunami warning advisory within 2-3 minutes after the quake and follow up with announcement about the estimated height and arrival time of tsunami. The information is transmitted immediately to disaster management organizations and media outlets and further disseminated to the residents and maritime vessels. Tsunami countermeasures also include expediting the announcement or transmission of tsunami forecasts and improving coastal and tidal embankments and tide prevention gates. Guidelines for the creation of a tsunami hazard map, and designation and development of tsunami evacuation buildings by local governments have been formulated and disseminated by the Cabinet Office in cooperation with concerned ministries.

There are also countermeasures for active volcanoes with JMA to monitor and observe volcanic activities through seismometers installed. A Coordinating Committee for the Prediction of Volcanic Eruptions was created and is composed of scholars and related organizations. This committee is tasked to make comprehensive decisions during volcanic eruptions. The committee is also tasked to promote research on volcanic predictions. Further, an Act on Special Measures for Active Volcanoes serves as basis for designation of areas for urgent improvement to serve as evacuation facilities. Hazard map on 37 active volcanoes have been prepared and the Mt Usu eruption in 2000 experience showed that 16,000 residents were able to evacuate in an orderly manner with JMA issuing alert two days before the eruption. Furthermore, the Basic Framework for Wide-Area Countermeasures against Mt. Fuji Volcano Disaster was formulated by the Central Disaster Management Council in 2006.

The Japan Meteorological Agency (JMA) and other relevant organizations install and maintain seismometers that are used for estimating the location of the epicenter and magnitude of an earthquake as well as for tsunami forecasts, and seismic intensity meters that measure the intensity of ground motion in numerous paces nationwide. As soon as an earthquake occurs in or around Japan, the JMA analyzes the data from

various seismometers and seismic intensity meters. Within about two minutes, it issues a seismic intensity information report for earthquakes of intensity 3 or greater, and within about five minutes, an information report indicating the epicenter and magnitude of the earthquake and the seismic intensity in the municipalities where strong shaking was observed. For earthquake countermeasures, a **Policy Framework** or a master plan of a range of activities from preventive measures to post-disaster response and recovery. There is also an **Earthquake Disaster Reduction Strategy** for damage mitigation and strategic targets based on damage estimation. **Guidelines for Emergency Response Activities** serve as guide for actions to be taken by related organizations. The **Act on Special Measures for Large-scale Earthquakes** is for intensified measures against the Tokai Earthquake and large-scale earthquakes. Under this Act, the observation system has been reinforced and the earthquake response system in the case of prediction report being announced has been developed. The Central Disaster Management Council also drew up the **Earthquake Countermeasures Basic Plan** for basic policies for actions to be taken in response to warning declaration. Relevant organizations have their own respective plans to carry out accordingly. Local governments carry out urgent projects to improve facilities for mitigating possible damage of Tokai Earthquake based on their respective plans so there is an increase in national government subsidies and fiscal measures for local governments based on the **Special Financial Measures for Urgent Earthquake Countermeasure Improvement Projects in Areas for Intensified Measures**.

JMA observes meteorological phenomena that cause storm and flood disasters through the Automated Meteorological Data Acquisition System (AMeDAS) that automatically measures rainfall, air temperature and wind direction/speed. There are also weather radars as well as geostationary meteorological satellites for forecasts and warnings. On the other hand, the rainfall and water level in the rivers are observed by the Ministry of Land, Infrastructure and Transport together with prefectural governments utilizing visual observation methods, mechanical observation equipment, and a wireless telemeter system that transmits automatically observed data from remote locations. Flood forecasts and water level information are provided utilizing the internet and mobile phones. Improving rivers and sewage system are some of the structural measures implemented to reduce damage caused by severe weather disasters. Non-structural measures such as preparing hazard maps and providing disaster information are being promoted in an integrated manner. Warning and evacuation system of possible flood inundation areas and landslide prone areas have been developed as non-structural

measures also in accordance with the **Flood Control Act** and the **Act on Promotion of Sediment Disaster Countermeasures for Sediment Disaster Prone Areas**. The two laws were amended in 2005 to intensify measures and to incorporate in the municipal disaster management plans including the familiarization of hazard maps and the identification of methods to disseminate disaster information especially to the areas and facilities for those who require assistance such as the elderly people. According to the **Flood Control Act** the designation and publication of the possible inundation areas in the basins of 248 major rivers and 940 medium to small rivers are a must and municipalities concerned must promote the preparation and dissemination of flood hazard maps.

The Disaster Relief Act application such as supporting relief activities of the local governments like snow removal from houses, dispatch of Self-Defense Forces, provision of subsidiaries for removing snow from roads, provision of special local allocation tax to complement the financial shortage of local government due to expenses in aiding elderly families in removing snow and for other relief operations. Based on the Act of Special Measures for Heavy Snowfall Areas, measures have been introduced to secure traffic and communications, protect agriculture and forestry industries, and improve living environmental facilities and national land conservation facilities.

Japan has become the champion of disaster risk reduction as a country because it has long institutionalized the combination of self-help efforts rooted in the awareness of the people and business corporations with the mutual-help efforts of various community-based organizations supported by the public-help efforts of the national and local governments. These characteristics of Japan Disaster Management System are extensively discussed in this paper through the various institutions that I have visited and the learning that I have accumulated in three and a half months of being a Visiting Research of the Asian Disaster Reduction Center (ADRC)

The Central Disaster Management Council played a vital role in this institutionalization process of creating and promoting a nationwide movement where individuals, families, communities, corporations and other various groups and entities participate in continuous activities and investments for mitigating damage. This movement has started in 2006 with the publication of the **Basic Framework for Promoting a Nationwide Movement for Disaster Reduction Actions with Added Value to**

Security and Safety.

To intensively heighten awareness of people on DRR, the national government has designated September 1st of every year as Disaster Reduction Day and August 30 to September 5 as Disaster Reduction Week. Various events such as DRR Fair, seminars, DRR drills and exercises, and poster contests are being held throughout the country to highlight these periods.

Disaster education in schools has already been institutionalized starting from childhood and disaster prevention drills are being held regularly starting from kindergarten schools. Disaster education is being taught in various school curriculums and social education with participation of the citizens is realized through the conduct of town-watching and hazard-mapping.

Sustaining the culture of safety is also continuously improving environment for disaster reduction volunteer activities since community-based disaster reduction organizations, firefighting and flood-fighting teams play a valuable role in disaster reduction in Japan. In order to institutionalize this efforts, the national government has designated January 17 of each year as Disaster Reduction and Volunteer Day and January 15 to 21 as Disaster Reduction and Volunteer Week. The Cabinet Office takes the lead in creating opportunities to share information among volunteer groups and relevant entities and in providing useful information to improve the environment for disaster reduction volunteer activities including the holding of ***Disaster Reduction and Volunteer Forum*** every year. This initiative by the national government is complemented by the publication of the ***Information and Hints Handbook*** which features information exchange on actual experiences and challenges of volunteer activities in cooperation with relevant ministries.

The role of business corporations is well defined in the whole gamut of disaster management system in Japan. Corporations are required to secure the safety of their customers and employees as well as to continue their business activities which contribute to the mitigation of social and economic difficulties during a disaster situation. Specific examples of such corporations such as the Osaka Gas Company, the Lake Biwa and the Hanshin Expressway which I had visited will also be discussed in this paper.

The Cabinet Office likewise plays a vital role in the enhancement of disaster reduction activities of corporations with the publication of the ***Business Continuity Guide*** in 2005 which helps companies to develop their respective Business Continuity Plan. The Business Continuity Plan (BCP) is a corporate management strategy to continue prioritized crucial business activities or to resume them as quickly as possible in the recovery time, taking into consideration the possible loss of business transactions taken by competitors or loss of market share or corporate value due to interruption at a time of a disaster. The technical committee of the Central Disaster Management Council published a checklist for evaluation of the companies that are active in DRR and evaluation is being done by the market and the community where they are located. In addition, the Development Bank of Japan launched a new lending mechanism for disaster reduction rating system wherein incentives are given for companies that promote corporate disaster reduction activities.

Japan has acquired knowledge and technologies for disaster reduction based on the experiences and lessons learned from the numerous disasters it has encountered and uses these knowledge and technologies in advancing international cooperation in disaster reduction. Japan has been supporting the promotion of Hyogo Framework for Action (HFA) in cooperation with the UN/ISDR through a) taking an “Initiative for DRR through Official Development Assistance (ODA)”, b) strengthening regional cooperation in collaboration with the Asian Disaster Reduction Center (ADRC), and c) promoting international cooperation projects.

➤ ***The Hyogo Prefecture Disaster Management System***

Disaster management in Hyogo Prefecture is pursuing disaster reduction based on the experience and expertise it has gained through the years especially after the Great Hanshin-Awaji Earthquake. Lessons of this Earthquake for Hyogo Prefecture and the entire Japan include the importance of preparedness and building a disaster management system that could respond to any disaster. Also the importance of initial response system since the disaster management officials may be victims themselves or their families in times of great magnitude disasters and paralyzed telecommunications will be expected. The importance of cooperation among disaster management organizations together with the community and regional disaster-response capability. In the case of the Great Hanshin-Awaji Earthquake, about 80 % of the victims who were buried under buildings during the quake were rescued by their family members or neighbors. This kind of local

life-saving activities played a significant role in highlighting the importance of community-based disaster response. Likewise, the importance of making cities resilient where the need for urban planning that takes space and safety into careful consideration. There is a Hyogo DM Center which was established in August 2000 as the first local government office dedicated to disaster management in Japan, and is capable of functioning even when lifelines have been disrupted in the aftermath of a major disaster. The Hyogo DM Center serves as the regional hub for Disaster Management activities. The DM Center is earthquake resistant and houses administrative office of the emergency relief headquarters, exclusive well for drinking during disasters, independent power generator, underground safe and secured pathway for close cooperation between departments of the government, emergency headquarters control room, waiting room, night duty room, broadcasting room, network control room, and cooperation organization staff room. The Center utilizes the Phoenix Disaster Management System where functions for collection of observation data, prompt damage forecasts, the collection of damage information, map information, image information, estimation of supply and demand of personnel goods and others.

The Hyogo Prefectural Emergency Management Training Center located at Miki General Disaster Prevention Park serves as a back up center or Hyogo Wide Area Emergency management Base Network and Prefectural Emergency Management Training Center for Nishi-Harima, Tajima, Tamba, Hanshin-minami, and Awaji. The areas for athletic stadium, parking, and indoor tennis court serve as area for accumulation of relief supplies, sorting and delivery of relief goods. The playing field, indoor tennis court and lawn are for training activities, build up of personnel, accommodation and mobilization. The stand under the athletics stadium and regional disaster management center are for stockpile of supplies for disasters. Presently, it has a stockpile of 66,000 blankets, 100,000 simple food, 1,000 temporary toilets, 22 boats and others like rice, generator sets. The second athletic stadium, baseball field serve as helicopter airfield. As a base for emergency response activities during disaster, the center functions for provision of stockpiled materials to disaster area, gathering and accommodating personnel and staff for emergency response, accumulation and delivery of aid supplies from other areas. This 400-hectare area generally functions for disaster prevention activities such as stocking aid for supplies for victims, working as a heliport, area for camp of working staff and for storing aid supplies. During normal times, the Prefectural Emergency Management Training Center and Miki General Disaster Prevention Park serve as facility for nurturing personnel engaged in safety and security of communities, research and studies on disaster prevention, and

place for sports and recreation.

The construction of 3-D Full-Scale Earthquake Testing Facility, nicknamed "E-Defense" in the city of Miki began in 1999 and was completed in 2005. The E-Defense houses the world's largest shaking table, which can simulate high level ground motions. This facility is a focus of full-scale testing of structures due to high-intensity earthquakes. It is a vehicle through which hope and optimism for improving the behavior of urban regions due to earthquakes will get an added boost. E-defense is open to the world and the Philippine Institute of Volcanology and Seismology (PHIVOLCS) in the Philippines has carried out an experiment of standard and non-standard Concrete House Building (CHB) in the Philippines. Furthermore, such a major facility requires coordination and collaboration of many participants, including academic institutions, government researchers, general public, private and industrial organizations

➤ ***The Kobe City DM System***

After the Great Hanshin-Awaji Earthquake, the Kobe City Crisis Management has been paving the way for a more disaster resilient community and towards becoming the world's safest city. It is their doctrine that developing a safe city starts with disaster reduction and crime prevention with the following five pillars: 1) Crisis management and disaster strategies from a long-term viewpoint; 2) enhancing communities' disaster and crime prevention ability; 3) enhancing ability for crisis management and disaster response; 4) establishing disaster-resilient urban infrastructure; 5) passing on and communicating the lessons learned from disasters. Kobe City has the number one goal, and that is community development so that communities will be developed to protect the most precious things, such as life, from every crisis. Communities are also developed in order to minimize damage brought about by disasters and crimes that occurred in Japan and foreign countries to include catastrophic floods and the Great Hanshin-Awaji Earthquake. Kobe City views crisis not only limited to natural disasters, but crises including health such as outbreak of SARS and influenza, and from crimes and accident such as the Subway Sarin Gas Incident in 1995. In order to manage these crises efficiently and effectively, comprehensive measures are undertaken through self-help, mutual help and official help in carrying out the prevention, preparation, response and relief and recovery process. Tangible and intangible strategies and results are employed such as the enhancement of community's ability for managing and responding to disasters; information dissemination, awareness raising, human resource

development; and the construction of infrastructure for a safe city.

Crisis management and disaster strategies from a long-term viewpoint are implemented through the formulation of disaster management plan, national protection plan, and promoting the implementation measures against Nankai Earthquakes and others. In enhancing community's ability to prevent disasters and crimes, Seismic retrofitting of houses are mandated. However, during our visit to Kobe City Disaster Management Center on February 18, 2013 together with the participants of JICA Course, we learned that retrofitting of the houses of Japanese citizens take time and much efforts since the people perceive that retrofitting their houses would entail a big amount of budget. Part of community enhancement to prevent disasters and crimes in Kobe City is the development of BOKOMI (Kobe City Disaster-Social Welfare Community) organizations; development of voluntary crime prevention activities; safety measures to protect school grounds, sound development of young people; and teaching the community about the value and importance of water and green spaces. In enhancing the community's ability for crisis management and disaster response, volunteer networks are created; implementation of measures for persons with special needs at the time of disasters; improving the system for health crisis management; improving the initial response system through the creation of crisis management room; improving firefighting and medical systems; and proper storage and maintenance of materials, water, toilets and other facilities needed especially during disasters. On the goal of becoming a world's safest city, Kobe City implements seismic retrofitting of public buildings to make them earthquake-proof and this is already 100 percent (%) completed as of February 18, 2013 visit to the Kobe City Disaster Management Center. This is implemented alongside with the project of the improvement of crowded urban areas. There is guide to land use wherein, in order to prevent natural disasters, forestry conservation and erosion control projects are implemented as well as measures against floods and great earthquakes. The Kobe City is also implementing networks of water and green spaces in order to improve disaster response, thus the functions of school grounds and parks as temporary evacuation areas are strengthened and if possible, these areas are improved and strengthened. Improved lifeline networks through utility conduits and water supply and sewerage means resilience in times of disasters and emergencies so these areas are improved and maintained at its best service condition. Information dissemination and awareness raising are most important strategies of human resource development in Japan so there is a continuous and vibrant provision of information and implementation of projects for human resource development especially

for passing on the lessons learned of the past major disasters in Japan to the younger generation. This is implemented through the institutionalization of the various disaster museums in Kobe City. The challenge indicators serve as a guide for Kobe City Disaster Management Center in evaluating and understanding their progress in achieving a safe city as follows:

- ✓ Number of established BOKOMI organizations
- ✓ Number of drills carried out by BOKOMI organizations
- ✓ Proportion of citizens who participate in community activities for safety, such as disaster or crime prevention activities
- ✓ Proportion of seismic retrofitting of elementary and junior high school buildings
- ✓ Measures for the seismic retrofitting of bridges
- ✓ Number of emergency water storage systems
- ✓ Progress rate for the implementation of measures against urban floods like the construction of rainwater arteries; and
- ✓ Progress rate for the implementation of measures against storm surges.

For a better understanding of how Kobe City has been developing its community for resilience, the five pillars on crisis management is expound on the succeeding paragraphs in this portion.

First is the pillar on crisis management and disaster strategies from a long-term viewpoint starting from the improvement of community disaster management plan and the improvement of measures against Tonankai and Nankai earthquakes. In the Kobe City Disaster Management Plan, responses from disaster prevention-related departments are integrated especially in responding to earthquake and the disaster prevention plan in the case of Southeastern Sea and Southern Sea Earthquake where plans to mobilize necessary personnel are considered as well as the areas requiring tsunami evacuation, and the tsunami evacuation center itself. Since the promotion of areas for disaster prevention are based on the Special Measures Law against Tonankai and Nankai earthquakes. Plans for wind and water disasters are also enhanced as well as measures against disasters caused by the release of radioactive substances, accidents at sea, railway accidents, airplane accidents and others. One of the major consideration also is the formulation of Disaster Prevention Support Manual which is easy to use where a list of disasters by type in chronological order is included. In the plan to promote city safety, disaster prevention projects are done based on a mid-to-long forecast. Disaster prevention database is also in placed to serve as

reference documents. The Kobe City Comprehensive Master plan towards developing a safe city is measured and evaluated for revision every five years to monitor its compatibility with the rapid demands of time given the complexity of disasters. On the second pillar which is enhancing communities' disaster/crime prevention ability, Kobe City is supportive of the activities of BOKOMI organizations through the initiatives of Kobe City Fire Department. Since the greatest lessons learned from the Great Hanshin-Awaji Earthquake of 1995 are "saving one's own life or the self-help"; "band together or mutual help"; and "enhance the power of community" for resilience. Kobe City highlights the powerful activities of the BOKOMI organizations such as the importance of mutual help displayed in the initial stage of disaster response activities. In normal times, BOKOMI organizations conduct various activities such as earthquake evacuation drills, fire drills and exercises to develop and strengthen ties in the community and at the same time, enhancing their disaster prevention ability. The 1995 Great Earthquake experience showed that 164,000 persons were confined under collapsed structures; 129,000 people escaped on their own or by oneself; 35,000 were rescued but out of these, only 7,900 persons or 22.5% were rescued by firefighters while 27,100 persons or 77.5% were rescued by the citizens themselves. If every individual is empowered by the knowledge on disaster prevention, safety and disaster management, more lives will be saved in times of disasters or emergencies.



Photo taken from the presentation on Kobe City Crisis Management Center PDF File.

Creating community safety maps and conduct of emergency drills or anti-crime activities are also some of the important activities of the BOKOMI organizations to empower its citizens. In the Uozaki District, a best practice on community rescue team specifically for Persons Needing Special Assistance during Disasters are conducted regularly. Each neighborhood resident's association made a list of PSND and evacuation supporters such as community rescue team who wanted to appear on the list. Thus, evacuation ability and awareness is enhanced through the conduct of this annual drill while confirmation of the safety of PSND, rescue them, guiding or transporting to the evacuation sites, explaining about the sites, management of the sites, offering meals and other support activities in the evacuation areas. These activities contribute to the deeper familiarization of the environment and the community together. Disaster

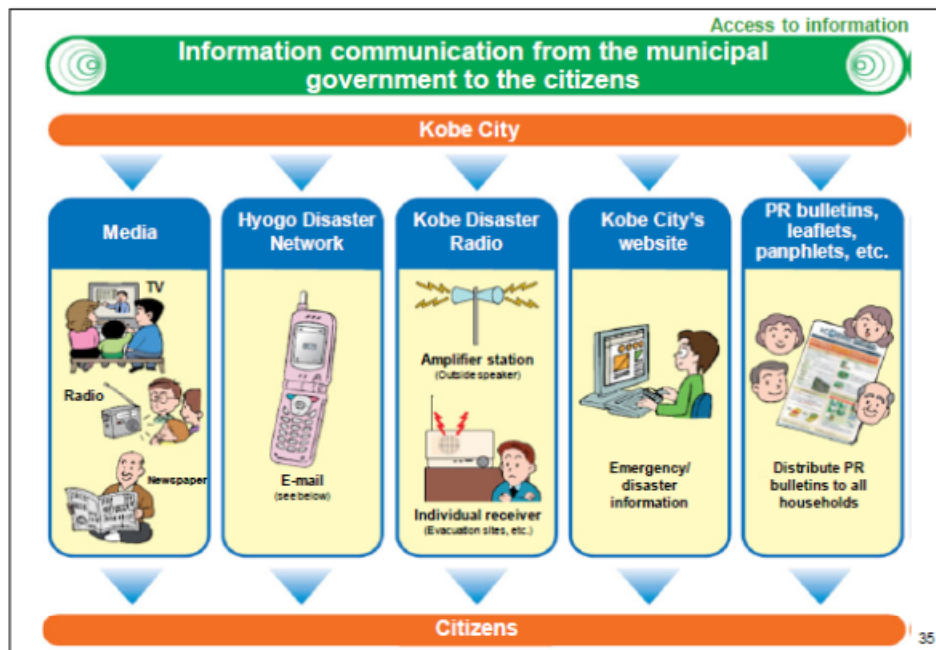
awareness on protecting communities by the communities is being passed on to the young generation through the cooperation and participation of elementary and junior high schools in the community. There is a system of the community rescue team which is recommended to the whole city as a guide. There is also the Hyogo prefectural mutual aid system for housing reconstruction. This is a system for supporting housing reconstruction by mutual help to cover the limitations of self-help, such as savings and insurance, and official support (official help). This aid is limited to buildings for residence

and usable only for housing reconstruction due to damage by any type of natural disaster. In order to avail of this reconstruction aid, an official

certificate for

the partial or complete damages incurred is required. The third pillar is the enhancement of the ability of the community for crisis management and disaster response. In improving systems for communicating information to citizens and guiding them for evacuation, amplifier stations (including antennas, radios, speakers) are set up at 63 places in the coastal areas and at wide area evacuation sites to broadcast disaster information and earthquake early warnings to citizens all at once. Individual receivers are distributed to community representatives and for foreign residents, the receivers are distributed to the representatives of foreign residents in communities in order to communicate the same information. Various hazard maps especially on the hazards to a particular locality is distributed to the citizens. We had the experience of learning from the hazard maps in our area when we visited Nada Ward.

Crisis management of Kobe City was formulated through cooperation and collaboration



with the academia, industry and the government banking on the lessons learned from the Great Hanshin-Awaji Earthquake. What is essential for preventing catastrophic disasters and other risks is the systematic and continuous crisis management to be carried out for crisis response involving cross-sectional cooperation among communities and companies regardless of their positions and business categories and daily and proactive preparation. A Kobe Safety Network Association was also created with 81 member organizations such as companies, governments and universities with hope of cooperation together with communities and citizens. There are three manuals for national protection plan for Kobe City namely, Measures Against Bomb Explosion Terrorism; Measures Against Chemical Terrorism; and Measures Against Biological Terrorism where information and system for cooperation as well as prevention of secondary damage, securing citizen's safety and rescue are included.

Fire and Disaster Management Agency and the Meteorological Agency play a very critical role in providing official information and disseminating early warning to the communities. J-Alert, flood control information system and prefectural phoenix information system are established to attain effective relaying of critical information to the general public for their appropriate and prompt response. Again, cooperation with the central and local governments, infrastructure companies, construction businesses and other stakeholders is necessary to achieve early warning and effective response. Another important role which the community plays is in the Kobe model of measure against new influenza where community cooperation system for early detection is established so as to prevent widespread occurrence of such influenza to the communities. The fourth pillar is on establishing disaster-resistant urban infrastructure through the promotion of seismic retrofitting of housing, elementary and junior high school buildings and improvement of lifelines to resist disasters. Lessons learned from the Great Hanshin-Awaji Earthquake states that 80% of the deaths were due to the collapse of housing or the toppling over of furniture 5-15 minutes after the earthquake occurred. Since January 2006, Kobe City has carried out free quake resistance testing and provided subsidies for the seismic retrofitting of and fixing furniture in housing whose construction started in and before May 1981. If the housing is a house, the upper subsidy is ¥1.3 million. Prefectural reconstruction subsidies can be used simultaneously and the prefectural reconstruction subsidies are provided through Fiscal Year 2011. Seismic retrofitting of elementary and junior high school buildings as mentioned earlier is now 100% completed since these schools serve as community disaster bases. One very outstanding effort done in Japan for the resilience of

communities to disasters is the improvement of lifelines of the communities to resist disasters. In their quest to promote the seismic retrofitting of the bridges of emergency transportation road network, approximately 190 bridges selected as priority bridges to increase seismic resistance. Based on their records, the retrofitting of 24 bridges that had been constructed based on particularly low seismic standards were already completed at the end of FY 2009. The number of bridges that will be 50 years old is projected to triple in number, at about 590, in ten years so a mass rebuilding period has begun. Bridge repair management starting from the process of inspection, planning, and repair was introduced in FY 2008 for the effective and efficient management and repair especially after a disaster impact. There are quake-resistant fire tank of 100 tons installed and for Fiscal Year 2009 around 253 tanks were already installed and as of July 2011 total tanks installed reached to 259. It was noted that before the Great Hanshin-Awaji Earthquake, only 38 tanks were installed. The emergency tank system is used so that when earthquake occurs, for example, the Okuhirano Control Center automatically issues an order to close the emergency shutoff valve installed in its distribution reservoir to secure the minimum amount of drinking water and for Japan, it is 3 liters/day/person X 7 days. Then the tank wagons distribute stored water to local residents from the Center, which serves as a water supply station. The emergency shutoff valves are installed in either one of the two distribution reservoirs in a set. Access to water from the other reservoir continues for use in firefighting. High capacity tanks will be installed in areas without distribution reservoirs, such as reclaimed grounds, to serve as water supply stations. Establishment of high capacity waterline is continuous such as the establishment of a new water route in addition to Mt. Rokko. Construction of toilets is strategic also for disaster management and stocks of 800 temporary toilet units are constructed and 300 units at 60 places are connected to public sewerage. In establishing a networked sewage plants, disaster-proof sewage system is being used. The last or fifth pillar is on passing on and communicating lessons learned from disasters. This is achieved by first improving disaster learning at elementary and junior high schools. The Great Hanshin-Awaji Earthquake brought many lessons learned such as the significance of people's lives, helping each other, caring for others, and family ties. All of these important lessons need to be passed on to young generation so Kobe City has developed and published supplementary reading materials entitled, "Shiawase Hakobo" (Messenger of Happiness) for elementary and junior high school students. With consideration on the importance of psychological care and characteristic of each school and area, disaster preparedness trainings are conducted, emphasizing on earthquake risk reduction in particular at all elementary and junior high

schools. The training also covers handing students over to their parents in the evacuation scenario. Kobe City also provides paramedic training for junior high school students and as of 2009, 5,223 students were certified as city life-saving technicians from 43 schools. The project for supporting disaster education at schools targeting children since 2007 are done through cooperation among schools, fire stations and communities.

B. Disaster-Safe Welfare Community (“BOKOMI”)

On January 17, 1995, Hyogo Prefecture experienced the Great Hanshin-Awaji Earthquake which claimed 6,400 lives with an approximately 10 trillion yen worth of damages. Through the long years of recovery process, Hyogo learned many lessons and acquired much knowledge on disaster management. According to the Director General of Kobe City Fire Bureau, Toshiyuki Onoda, “the greater the disaster, the larger the damage the local government suffers from. The deterioration of administration systems caused by such huge disaster can lead to delays in providing support for citizens. Therefore, during the primary stage of a disaster and during the first few days following a disaster, citizens may also need to respond on their own.”²

As such, preparations for any disaster or emergencies done on a regular basis is greatly valued and will be very useful in times of disasters or emergencies. As one of the lessons learned from the Great Hanshin-Awaji Earthquake, Kobe City established voluntary organizations for disaster prevention in communities called “Bokomi” or Disaster-Safe Welfare Communities. In Kobe City, educational programs on disaster management is resident-oriented and involves the entire community in preparing for and working toward disaster prevention. The Kobe City Community-Based Disaster Risk Reduction and Management Program is dubbed as “Bokomi” or Disaster-Safe Welfare Community.

Specifically, Bokomi is Kobe City’s disaster prevention organizations “Disaster-Safe Welfare Communities” and an abbreviation of its Japanese name “Bosai Fukushi Komyunithi”. The institutionalization of the establishment of Bokomi started from the lessons learned from the 1995 Great Hanshin-Awaji Earthquake. According to the Bokomi Guidebook, model organizations were established in 11 districts in the city

² Onoda, Toshiyuki. Foreword. Bokomi Guidebook. January 2010.

starting from 1995. In 2009, 191 districts in the city have organized their Bokomi, covering the whole area of Kobe City, and to date, Bokomi have been organized in 100% of the Kobe City districts.³

BOKOMI is Kobe City's Community-Based Disaster Prevention Organization

Accordingly, BOKOMI is established in every municipal elementary school district by the residents. The reason why BOKOMI is based on all elementary school districts is that there is an existing "Welfare Community" organization established for welfare purposes in each elementary school district and a disaster-prevention (bosai) organization integrated into the existing organization. Also, elementary schools serve as evacuation sites for communities in emergencies (such as disasters and crimes) in Japan. This is another reason why BOKOMI is established in each elementary school district so that each BOKOMI can operate their evacuation site in case of an emergency.

During the February 6-8, 2013 trip in Sendai City by the ADRC Visiting Researchers together with JICA to learn on the lessons of the Great East Japan Earthquake, it was noted that many success stories of lives saved from the tsunami when the communities evacuated on the top floor of elementary schools. However, evacuees had to endure the cold temperature and the wet clothes that they wore through the night because they had nothing with them.

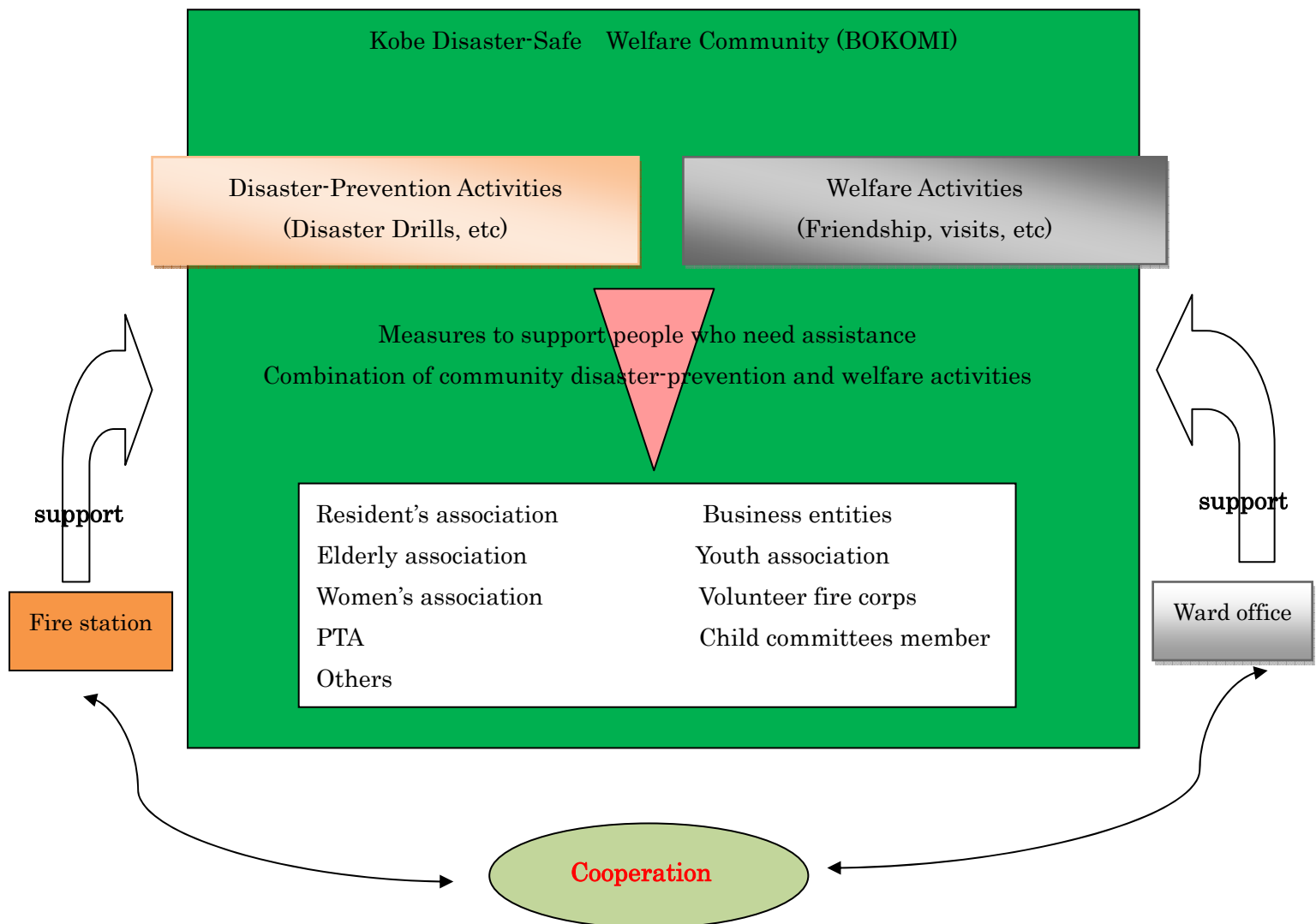
The process of establishing BOKOMI in local areas requires certain criteria such as first, the establishment of a community-based disaster prevention organization is discussed and decided on by local government organizations including the local city office (ward office) and the local fire station, together with leaders of local residents' associations, women's associations, elderly associations, volunteer fire corps, Parents-Teachers Associations (PTAs), etc.

Once the establishment of BOKOMI is decided on, the equipment and materials needed for the activities are distributed from the local government (Kobe City) and storehouses are installed in local parks, usually in elementary school parks which also serve as evacuation centers, in preparation for emergencies.

³ Bokomi Guidebook. January 2010.

During normal times, each BOKOMI conducts various emergency drill programs including how to use the provided equipment and materials, as part of the activities in preparation for major disasters.

In order to enable the utilization of people’s networks in case of emergency, BOKOMI also conduct welfare activities (such as keeping in touch with and holding lunch gatherings for the elderly who live alone) as an effort to cover both community welfare activities and community disaster prevention activities. This is a characteristic feature of the community-based disaster prevention organizations in Kobe City which were established based on the lessons learned from the Great Hanshin-Awaji Earthquake.



Cooperation between BOKOMI and a School

In Kobe City, local BOKOMI assists with the conduct of emergency drills in school, because cooperation between schools and communities has certain advantages. BOKOMI can give advice and guidance to schools because they conduct emergency drills in their community regularly and they have the know-how, equipment and material for the drills. Then, the community residents experienced the Great Hanshin-Awaji Earthquake and therefore they can directly pass on lessons learned from the earthquake to children who do not experience it. In addition, school teachers who did not experience the earthquake are also increasing in number. Community residents who participate in school activities can assist teachers who have not experienced earthquakes and enable more effective disaster prevention education through which children can really understand its importance. Another advantage is that, children's parents and the Parents-Teachers Association who do not often participate in community drills are more likely to participate in emergency drills held at schools. This provides a chance for both of them to become interested in participating in community-based disaster prevention activities and this can lead to the revitalization of the BOKOMI.



The third floor of the Elementary School is used as the Evacuation Center.



Community Drill at together with the students, parents, teachers, with support from Kobe City Fire Bureau and the BOKOMI in the area

Cooperation among Local Government Organizations and their Assistance to Communities

Kobe City Board of Education and Kobe City Fire Bureau (KCFB), which supports BOKOMI, jointly developed a disaster prevention education programs which can be

used at schools mainly elementary schools, and other educational situations. These programs were then compiled in a booklet. The series of disaster prevention education program used in the BOKOMI Guidebook is taken from the said booklet. The booklet also includes a host of education programs through which children can obtain knowledge including techniques for disaster prevention while thinking on their own and enjoying at the same time. In addition to the series of disaster prevention programs, the booklet also explains how schools can cooperate with the local BOKOMI when conducting each program. The booklet is distributed to BOKOMI as well as to schools with



the aim of promoting integrated disaster prevention activities by communities and schools. It is expected that using the same booklet on disaster prevention education will promote coordinated activities between communities and elementary schools.

KCFB also coordinates schools and communities by deploying a person in charge of community-based disaster prevention to each fire station, who is responsible for giving advice on disaster prevention education and drills, renting educational materials and other equipment and materials, as well as dispatching fire station staff to communities and schools.

Framework for Cooperation among Various Sectors in Hyogo Prefecture and Kobe City (Local Government Organizations, Universities, Communities, Schools, Private Companies, NGOs, etc)

Since the Great Hanshin-Awaji Earthquake which occurred 15 years ago, people in Hyogo Prefecture and Kobe City have learned the importance of cooperation among various sectors (“horizontal” relationship) for improving disaster prevention capabilities of the communities and promoting disaster prevention education at schools, rather than each sector individually conducting their activities (“vertical” relationship). Through the fifteen (15) years of experience, the cooperative framework has been developed. Community-based disaster prevention activities and disaster prevention education at

schools can lead to both the revitalization of the community activities for disaster prevention and better quality disaster prevention education at schools.

Community emergency drill programs are various drill programs which can be conducted by local community residents, by the community-based disaster prevention organizations. This part also includes the information about how to develop a drill plan and how to conduct emergency drills when implementing drills in local communities. In the BOKOMI Guidebook, the guidelines in



conducting emergency drills are also provided and can be shared in local communities who will participate. If no specific disaster prevention framework exists in the area, one can utilize the existing districts and different actors in the districts (such as residents' organizations, religious institutions, women's associations and mutual support groups). If there are groups which are working on specific issues in the community (such as welfare, the environment, and healthcare), one could work with these groups and foster them so that they can work on disaster prevention activities in addition to their current activities. For example, groups which work on welfare plus disaster prevention; or groups on the environment plus disaster prevention; and groups on healthcare plus disaster prevention can be considered.

School Disaster Prevention Education Programs

The BOKOMI also provides guidelines on various disaster prevention education programs which mainly target elementary schools. BOKOMI assists in the formulation of a school disaster management plan and annual disaster prevention education plan. The programs that they have developed are designed to be instructed and utilized mainly by teachers, but most programs can be conducted in cooperation with local communities. The information provided can be utilized for implementing community-and-school joint educational activities on disaster risk reduction and management.

In Kobe, local communities or the BOKOMI assist the schools in conducting emergency drills which are normally held following evacuation drills at schools. Local government organizations including fire stations also assist in the emergency drills.

The program being pursued by the BOKOMI is mainly activities involving earthquake preparedness and the emergency drills and disaster prevention education programs are also based on the Japan context. However, all of these can be modified to suit other countries actual situation and conditions. In Japan, governmental support for emergency drills and first aid training is mainly provided by fire stations. Any governmental support suited for the actual condition of each country should be provided through appropriate frameworks. The cooperative framework to be used among government organizations must be reviewed, discussed and agreed upon among themselves be done on a regular basis.

Cultivating a Culture of Safety at an Early Age: Disaster Reduction Drill in Kindergarten School

A culture of safety is institutionalized in Japan starting from an early age as we have witnessed in Kuwanoki Kindergarted School, Seishin Chuo where the disaster prevention drill is being conducted every month in coordination with the local fire department, the community leader, the school principal and management, teachers and volunteer junior high school students in the community.



Kindergarten pupils in Seishin-chuo during the disaster prevention drill together with junior high school disaster reduction volunteers

C. Kaeru Caravan: DRR Learning for Children

Kaeru Caravan is a brand new disaster prevention art program launched as part of the ten-year commemorative project for the Great Hanshin-Awaji Earthquake. This program consists of a workshop which allows participants to learn how to extinguish a fire and rescue and aid people while enjoying game-like activities and



“Kaekko Bazaar”, a toy exchange program designed by artist Hiroshi Fuji. As a result of this program, young families who rarely participated in disaster drills before began to actively participate in the program.

Iza! Kaeru Caravan! is a new type of disaster drill program co-developed by plus (+) arts and the artist Hiroshi Fuji. Based on the toy barter trading program "Exchange Bazaar", invented by Fuji in 2000, that can attracts broader range of audiences and creates an enjoyable atmosphere, the program turns bazaar's "hands-on corner" into



amusing disaster drills such as "fire-fighting", "rescue" and "first-aid". The participants are able to learn about disaster prevention and acquire related skills while enjoying themselves. This new attempt has attracted young families who were not necessarily proactive about disaster drill before and had total of 7,000 family members participated in the 10th anniversary events for the Great- Hanshin-Awaji Earthquake, over 19 days at seven different venues, in Kobe in 2005.

In 2006, in order to expand the program throughout Japan, the program changed its name from "Kobe Kaeru Caravan 2005" to "Iza! Kaeru Caravan!", and held events in

Yokohama, Niigata, Osaka and Miyazaki. The program has continued to organize events in different cities in Japan including Tokyo since 2007 while it starts to launch in the cities of other Asian countries. With the help of +arts, most of the cities that held the program for the first time conducted the second and following events voluntarily.

***D. Corporations Commitment on Disaster Risk Reduction and Management:
Osaka Gas Company***

Even the private company has the genuine commitment of not only taking care of the needs of their customers but also in making the environment safe from disasters with its earthquake-triggered disaster prevention measures.



Right after the Great Hanshin Earthquake in 1995, up to around 860,000 households were cut off from the gas supply. This also included those whose gas supply was shut off to prevent a secondary disaster. Applying the lessons

learned on this particular earthquake, Osaka Gas has developed a five-year Disaster Mitigation Plan which comprises three pillars such as prevention measures, emergency response and restoration measures. Based on the plan, Osaka Gas has implemented various measures including the development and introduction of an earthquake-proof equipment, establishing gas shut-off systems, providing disaster education and training to employees and developing temporary gas supply systems.

Osaka Gas has three basic disaster prevention measures for earthquakes namely 1) preventive measure by ensuring a strong facility against earthquake; 2) emergency measure or preventing the occurrence of secondary disaster; and 3) restoration measure or early resumption of gas supply after a disaster impact.



This company is an outstanding example where safety is a priority thereby contributing to resilience of communities to

disasters. Safety measures at LNG Terminals is also anchored on bolstering earthquake resistance facilities. Osaka Gas major LNG facilities including LNG tanks are earthquake proofed to withstand strong magnitude earthquakes such as magnitude 7 on the seismic intensity scale. This is one of the most notable information that none of the Osaka Gas LNG was damaged during the Great Hanshin Awaji Earthquake. But to minimize possible damage in the event of an earthquake, LNG tanks are constructed on foundations supported by hundreds of steel piles that are driven into solid earth and the tanks are of double-shell construction.

The central control rooms at LNG terminals carry out around-the-clock monitoring and operation of all processes from receipt of LNG to production and delivery of gas. Emergency detectors are installed throughout the LNG terminal. Should a detector detect an abnormality, an alarm will be sounded in the central control room and staff will rush to the scene and respond to the problem.

To safeguard the tanks against natural disasters, surrounding dikes are built around the LNG tanks to prevent LNG from flowing out in case of an unexpected LNG spill. Even if LNG spills out inside the dike, high-expansion foam discharge devices and water curtain facilities can prevent LNG from spreading.



In order to make the gas pipelines earthquake proof, Osaka Gas uses polyethylene (PE) pipes when installing new low-pressure pipes. These PE pipes have high earthquake resistance and corrosion resistance. PE pipes had almost no damage during the Great Hanshin-Awaji Earthquake. Now over 80% of Osaka Gas pipeline network has been earthquake-proofed.



Osaka Gas is currently promoting the widespread use of micro-computer controlled meters. With the use of micro-computer controlled meters, gas use is monitored

around the clock. The microcomputer controlled meter automatically shuts off the gas supply should it detect an earthquake or large gas leak. One hundred percent of residential customers in Osaka Gas supply area are now equipped with the meters. This is the best example of preventing secondary hazard such as fire after the occurrence of a strong earthquake.

The company has installed seismographs and remote monitoring devices throughout its service areas to enable quick determination of seismic intensity and collection of information on state of gas supply. To prevent secondary disaster, the company has divided its supply area into blocks. In each block, an automated seismic shutoff devices and remote shutoff devices are strategically installed. If a disaster occurs and the gas supply is temporarily shut off, working on each subdivided block will make it possible to restore service promptly while ensuring safety.

Osaka Gas Company actively conducts joint disaster drills with local governments and fire departments with the aim of improving security awareness and disaster response capabilities of all its employees. The company also conducts education and training programs to ensure that advanced knowledge and skills regarding safety and disaster prevention are passed on to future generations.



Hyogo Prefecture Comprehensive
Disaster Drill
(under the scenario of a fire caused
by an oil spill from heavy oil tanks)

The company believes that through safety drills will lead to an effective and efficient response to an emergency. Osaka Gas conducts more than 2,000 disaster drills (including small-scale drills for a few people) yearly at its business bases such as at the Senboku and Himeji LNG Terminals and Pipeline Business Units. This is done to ensure that all employees can exercise prompt and proper judgment in the event of a disaster such as earthquake and fire. The company has also concluded certain disaster risk reduction and management agreements with local governments and companies including the conduct of joint disaster response drills.

In October 2011, Hyogo Prefecture Comprehensive Disaster Drill for Petrochemical Complexes, etc., organized by the Hyogo Prefectural Government, was held at the Himeji LNG Terminal. The comprehensive disaster drill for petrochemical complexes is held annually. The 2011 drill was conducted under the scenario based on the probability of major earthquakes, causing damage to land and sea. A total of 140 people from 13 organizations participated in the drill, including the Maritime Safety Agency, Self Defense Force, fire departments and police stations, and neighborhood companies. In the drill, which simulated an oil spill from heavy oil tanks and ensuing fire, our LNG terminal workers practiced their initial response procedures. This annual drill helps reinforce collaboration among participating organizations.

The company is also committed to passing on advanced knowledge and skills for safety and disaster prevention to future generations. Osaka Gas strives to develop human resources with advanced knowledge and skills in safety and disaster prevention. In preparation for the retirement of experienced technicians, the Human Resources Development Center of the Pipeline Business Unit launched a new human resources development system in fiscal 2008. To establish a system that does not allow an accident to happen (i.e. safety culture), the Center has been promoting human resources development in an organized, systematic manner, and "know-why" education to ensure that employees understand the meaning and theoretical background of operational procedures. In an effort to enhance employees' safety awareness and performance, an experience-based training facility has been established that enables them to simulate a variety of problems that have occurred in the past, so that lessons learned from past failures are shared among employees.



Various training courses are also offered by the Human Resources Growth Center, which provides safety and disaster prevention education to LNG terminal workers, and

the Human Resources Development Centers of the Residential Energy Business Unit and the Commercial & Industrial Energy Business Unit, which provide services relating to gas pipes and gas appliances at customer sites.

E. Protecting Communities from Flood: The Management of Lake Biwa

Lake Biwa is one of the oldest lakes in the world and is a habitat for a diversity of creatures. According to the Lake Biwa River Office data, Lake Biwa is one of the oldest lakes in the world which was formed four million years ago in Ueno Basin, Mie Prefecture, eventually shifting until it reached its current location. With its rich ecosystem, Lake Biwa, was designated as a registered wetland under Ramsar Convention or the Convention on Wetlands of International Importance especially as Waterfowl Habitat in June 2003. The lake has an area of 670 square kilometer, one-sixth of Shiga Prefecture, and a volume of 27.5 billion cubic meters.

The weir in Lake Biwa reduces flood damage and secures water for living and industrial use. The lake regulates pond for flood control in the downstream and serves as reservoir in times of drought. Lake Biwa provides an important source of water for 17 million people in Kyoto, Osaka, and Kobe. About 60% of the flow quantity in the downstream of Yodo River depends on the discharge water of Lake Biwa.

The Seta River Weir was constructed because of a devastating flood in the late 19th century. This was then an important project especially on its set up along with the dredging of Sea river among Yodo River Improvement Construction Works in 1900 to 1908. The improvement of the flow by dredging Seta river causes a flood in the downstream of Yodo river. To reconcile the conflicting interests of both communities, upstream and downstream communities, the Seta River Weir was constructed. The weir was also designed to control water level of the Lake Biwa, the reduction of flood discharge, and the upkeep of the normal function and the flow in Uji and Yodo rivers which are the downstreams of the weir. The weir likewise strategically controls the supply of public water, industrial water, and agricultural water. The weir constructed through Yodo River Improvement Work was completed in 1905, and is called "Nango weir". The construction the new weir in 1961 complements its ultimate purpose. However, a part of the Nango weir is still preserved as a historical value which decorates one page of the flood control history in Seta river. The present weir consists

of the main weir completed in March 1961 and the bypass channel constructed in March 1992 as part of the Lake Biwa Development Project. In September 1896, a great flood occurred in Lake Biwa basin inundating almost all the surrounding districts which lasted to more than 200 days according to records. According to the records of Lake Biwa River Office, Kinki Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism, the great flood which occurred in September 1896 was caused by heavy rains that continued for ten days from September 3 to 12, with a total rainfall of 1,008 mm or more than half of the annual precipitation of 1,900 mm in Shiga Prefecture, especially with torrential rains of 597 mm in a single day of September 7. The heavy precipitation raised the water level of Lake Biwa to plus 3.76 m at the Torii River Observation Station, near Karahashi, and caused disastrous floods all around the Lake Biwa. To educate the future generations on this disaster, stone monuments were built and traces were preserved to record the flood stage. In front of the memorials, visitors can learn how devastating and terrible floods were.

Under rainfall conditions, Lake Biwa, by virtue of its terrain characteristics, is very vulnerable to flooding which could last for a long period of time. This characteristics is due to the fact that as many as 118 Class A rivers such as Ane, Ado, and Yasu rivers are flowing into Lake Biwa. It was believed that as early 8th century, communities began to tackle the problem on flooding themselves with a Buddhist priest who came up with an idea of dredging the bottom of Seta river to lower down the water level of Lake Biwa. The then early local rulers named Tairano Kiyomori, and Hideyoshi Toyotomi of the 12th and 16th centuries respectively, tried to drain water from the lake to the Sea of Japan but failed. In the 17th to 19th century or from 1603 to 1868, it was said that citizens living around the lake dredged the river at their own expense but said engineering work did not prevent the flooding of Lake Biwa. Successive devastating floodings occurred along Lake Biwa and in 1889 paddy fields in the area were badly inundated that farmers could not plant seedlings. In 1896, the entire country of Japan suffered severe flood damages which prompted the enactment of the River Law. The River Law enabled the national government to carry out large scale river improvement projects but the Yodo River Improvement Work started 1980 based on the nation's first river plan. From 1900 to 2009, the Yodo River improvement work is dredging of Seta River including its development. The comprehensive development projects of Lake Biwa is not only from the viewpoint of flood prevention and water utilization but also from the perspective of environmental preservation and had been implemented for 25 years from 1972 to 1996. There are three pillars on the project plan namely, preservation measure to conserve

the water quality of the lake and its affluent environment, the flood control measure to address the problem on floods, and the water use measure to utilize effectively the water of Lake Biwa. The projects carried out by the Water Resources Development Public Corporation or presently called Japan Water Agency are the lake embankments, drainage from protected lowland, southern lake dredging, the Seta River dredging, improvement of the Seta River weir, and management facilities. The national or municipal government carry out the construction of dams, Sabo works, erosion control, afforestation and forest road, sewage works, night soil treatment, making the land public belongings for preservation of the national environment, facilities for provision of the environment for livestock, facilities for processing drainage in agricultural villages, garbage processing facilities and facilities for monitoring water quality. Project conducted by both Japan Water Agency and the national and municipal government are construction and management of roads, rivers, water supply, industrial water supply, land improvement, fisheries, ports and harbors, fishery ports, urban parks, and facilities for natural parks.

Heavy rains for long period brings up the water level at the Uji, Kizu, Katsura and Yodo rivers. Increase in Yodo river discharge increases the water level of Lake Biwa. As the water level continues to rise, the weir is opened to bring the water level down. On August 17, 2007, the decision of the Yodo River System Improvement Basic Policy was established and on March 31, 2009, the Decision of the Yodo River System Improvement Plan was established.

In the past, the water at Yodo river was mainly used for agricultural water and transportation services. In 1890, the first water utilization canal of Lake Biwa was constructed which paved the way for the hydroelectric power generation at Uji river, transportation, irrigation and public water usage. The first term Yodo River Water Control Work was implemented to cope with the increasing demand of water in line with the development of industrial economy, and with the control of water level of Lake Biwa, efficient and effective water utilization and management became possible. With the enactment of Water Resource Development Promotion Law in 1961, various projects were conducted under the Yodo River Basin Water Resource Development Basic Plan or the so called "Yodo River Full Plan" to cope with the demands of social and economic recovery.

Structure and Function of Seta River Weir

The combination of main weir and bypass channel serves to control both floods and drought. The main weir is composed of ten units of two-stage steel roller gates which is capable of controlling a great amount of discharge mainly to prevent flood. Its bypass channel which is a pair of conduits of 15 cm and 5 m wide is equipped with three-stage steel roller gates, with a flow controlling valve and hydraulic power generation facilities installed at the end, and is capable of controlling a small amount of discharge with great precision, primarily to prevent drought.

The flow controlling valve can discharge up to 8 cubic meter per second. The main weir can only control a large discharge of water while the valve works automatically to prevent fluctuations in the discharge and the small changes in the water level of Lake Biwa. According to the Lake Biwa Development Project, the available low water level is -1.5m and the discharge becomes impossible when the water level is less than -1.3m. The gates are to be opened for discharge but a precise control of flow is difficult in this method that is why a bypass channel is installed in order to make a precise control of flow rate even if the water level goes down. Using a part of the discharge from the bypass channel, the power generation for management by low head is conducted.

The weir controls the amount of water by overflowing the gates. When the main weir gate is in the mode of touched bottom, both upper and lower gates are attached to the bottom, and the maximum flow in the overflow situation is discharged. In this mode, the precise control of flow is impossible. The fluctuation of water level in the upstream changes overflow water depth, which leads to a variation of flow. Full open mode is the situation when upper and lower gates are moved up above the water surface, and Seta river flows naturally in this mode. The discharge sharing has four components namely main weir, bypass, controlling valve and power generation facilities which play a role with each other.

There are buildings for management, electricity, facility, discharge remote control facility, alarm facility, observation facility, and communication facility established in order to manage the Seta River Weir. The building for management is constructed with Lake Biwa River Office which is adjacent to Seta River Weir. The office is consists of a branch operation office and the control building.

The branch operation office or Aqua Biwa was established in March 1992 as a facility for the people to learn flood control and water utilization of Lake Biwa and Yodo river, as well as to promote and spread the related scientific knowledge.

There are various observation facilities for observation and monitoring of the weather with large differences between the north and south areas because the weather in the Lake Biwa area shows a clear difference between the north and the south. There are a number of information service facilities providing information of water level at Lake Biwa for its users. There are three facilities for remote controlling, information processing and safety confirmation. The discharge control system functions to remote-control each gate automatically or manually. The disaster prevention information system stores collected data on hydrology and water quality as well as statistics process and various simulations. There are also CCTV facilities installed to confirm safety of weir operation and monitor moves of each gate. The alarming facility includes nine stations with sirens around the weir, at the upstream and downstream areas. Furthermore, to ensure that the water will be discharged safely, patrols go along the river, on foot and in warning cars, to carry out safety checks and before the discharge operation, a siren will alarm to give a warning.

There are seven water level gauging stations for monitoring the water level of Lake Biwa with the oldest station monitoring for 130 years way back 1874 under the guidance of a Dutch engineer. Since it is difficult to grasp the water level at only one station, it is determined that the water level of Lake Biwa shall be the mean value of the water level at the five gauging stations according to the River Weir Operation enacted in March 1992. Standards for the water level control of Lake Biwa are thus set up by the Regulations of the Seta River Weir Operations. The water level of Lake Biwa is controlled to maintain to maintain Lake Biwa Surface Level at +0.3m during the non-flood period, and -0.2m or -0.3m lower than surface level at the flood period in order to bring the highest water-level down during the flood. In case of drought, availing the water level of -1.5m, it supplements public water, industrial water, agricultural water, and river maintenance discharge, which are needed in the downstream of Yodo river. During the flood season, the water level of Lake Biwa is lowered by -0.2m or -0.3m in advance to bring down the highest water level at a flood time under the "Transition Operation" which is carefully done so that a sharp change of the water level is avoided. Hence the operation of the Seta River Weir is classified into two: during flood for the prevention of flood around Lake Biwa and reduction of flood discharge in the

downstreams; and the other is during the ordinary low water period like water-level maintenance of Lake Biwa and supplement of water to the downstream. During the ordinary or low water level, the weir is operated to control dams at Yodo River system and Lake Biwa so that water will be use efficiently. The weir is operated daily based on the intake situation necessary for public water and industrial water consumption in the downstream of Yodo river.

During the flood, the discharge at the Uji and Yodo rivers is restrained or the weir is completely closed, thus the flood control is made in the downstream. Then the Seta River Weir is fully opened after the increase of water in Kizu and Katsura rivers is stopped. The water level of Lake Biwa is refrained from increasing and is lowered. At the Amagase dam, a preliminary discharge is made when a flood is expected in order to secure the flood storage (pocket to store flood) and for smooth operation of the preliminary discharge from the weir is restrained. When the flow rate at the point of Amagase dam exceeds 840 cubic meter per second, Amagase dam makes flood prevention for Uji river through flood control. In this case, the Seta River Weir is completely closed from when flow rate into Amagase Dam exceeds 840 cubic meter per second until when it becomes less than 840 cubic meter per second. Since the water level at the Hirakata point of the downstream of Yodo river exceeds +3.0m until the lowering of water level is confirmed, the weir is completely closed. In order to be ready for a coming flood, Amagase Dam discharges the water stored for flood control and lowers to the limited water level. The discharge from the weir is limited in order to shorten the time for operation. Once the flow of Kizu and Katsura rivers has ceased increasing, the Seta River Weir is fully opened to restrain a rise of the water level at Lake Biwa and then to bring it down. The Lake Biwa Development Project designates -1.5m as the usable low water level of Lake Biwa and develops 40 cubic meter per second of water for use. During drought and the water level goes down, users of water in the downstream of Yodo river, the Kinki Regional Development Bureau, Osaka, Hyogo, and Shiga Prefectures convene the "Yodo River Drought Control Conference" and coordinate measurements against drought. The Minister of Land, Infrastructure, Transport and Tourism decides what measures to take after hearing the opinions of the concerned governors.

Development and preservation of river environments. The operation of Seta River Weir has also taken into consideration the diverse species living in the river, its impact on fish in spawning, growth and increase. The Seta River Weir is operated in such a

way to prevent death of fishes from failing to escape and drying up river water in lower reaches.

F. The Role of Learning Institutions in Creating a Culture of Safety in the Community: Disaster Reduction and Human Renovation Institution

One of the major factors in institutionalizing a culture of safety among the citizens is the establishment of a Disaster Reductions Institute. The DRI or the Disaster Reduction and Human Renovation Institution is also known as the Great Hanshin-Awaji Earthquake Memorial. The DRI was founded by Hyogo Prefecture in April 2002 with the support of the Japanese government. It is being supervised by the Hyogo Earthquake Memorial 21st Century Research Institute. The DRI aims at cultivating disaster prevention culture, mitigating social vulnerability, and developing policies for disaster reduction by transferring experiences of the Great Hanshin-Awaji Earthquake and applying lessons learned from the Earthquake for the better future, thereby contributing to realizing a safer and more secure civil society along with education regarding the value of life and the preciousness of co-existing. Aside from this, the DRI also aims to be an international research and study hub, which contributes to disseminating information on effective measures for all types of disasters.

➤ Disaster Reduction and Human Renovation Institution

Museum Exhibits. The DRI features actual experiences and lessons learned from the Great Hanshin Awaji Earthquake. This is in collaboration with disaster victims themselves, local citizens and volunteers. The museum is open for the rest of the world to learn from, especially for the children who are to create a future. The knowledge gained from this is for the children to consider in every decision they make so as to contribute in making a resilient society. Through this institution, DRI motivates citizens and visitors and visitors to take a sincere interest in, deliberate upon, and understand the importance of disaster reduction, precious human life, and the value of mutual dependence of people.

Action Research on Disaster Reduction and Development of Disaster Reduction Professionals.

As DRI adequately understands the challenge for public entities based on the

experiences of the Great Hanshin-Awaji Earthquake as well as on academic research achievement. DRI conducts action research that contributes to the formulation and implementation of disaster reduction policies and management actions by central and local governments, communities, and business enterprises. In addition, DRI takes a lead role in promoting and increasing the value of such practical research approaches within the academic arena. For a widespread disaster reduction awareness within society, DRI provides practical research for the improvement of disaster reduction abilities. There are ten research fields identified as follows:

- Governmental disaster management
- Emergency evacuation measures
- Secondary disaster measures
- Logistics of material resource
- Information measures
- Volunteer
- Infrastructure
- Care for victims
- Local economy

Important areas for research are considered while attempting to plan for the next 30 years, DRI takes on into consideration present social demands along with their overall mission statement. This is often done by continuous and systematic updating of the organizational roadmap every 5 years to reflect important areas for research and the research that should be addressed. Important areas of research are also focused on the optimization of post disaster response as it relates to individuals and society; improvement of inter-organizational cooperation policies to cover disasters that span wide areas; and building strategies for restoration and revitalization of regional communities. The Institute has also established “improving Society’s Ability to cope with Large-scale disasters” as the Institute’s core research theme which is to be continued over a fixed term. “Special Research Projects” flexible and mobile research themes established to dig deeper into the development of related areas of the “Important Areas of Research”. Groups of all full-time researchers are involved in this project over fixed terms. In fostering full-time researchers, the Institutes encourage candidates with a Master or Ph.D. degree as eligible for employment for 3-5 years as a full-time researcher. Under the direction of senior researchers, they are then able to work on practical disaster prevention research and participate in the various other businesses of the center which is also a part of their training to become practical

disaster prevention experts.

Collection and Preservation of Source Documents and Materials.

DRI works in association with local citizens and communities to continuously collect information on the Earthquake and disaster reduction, as well as in the development of its database. This is primarily aimed to ensure that the profound feelings of disaster victims and the lessons of the Great Hanshin-Awaji Earthquake do not fade from our memory. DRI in turn displays and disseminates this information in a manner which is a lot easier to understand especially for ordinary citizens.

Headquarters Assistance in Disaster Response.

DRI also dispatches experts with practical and systematic knowledge in disaster response especially in case of large scale disasters. These dispatched experts will provide appropriate information and advice to headquarters managers, thereby contributing to mitigation of further damage as well as in preparation for recovery and reconstruction.

Training of Disaster Managers and Practitioners.

DRI likewise conducts training of local government practitioners who play central roles in disaster management. In these training programs, DRI share the experience of the Great Hanshin-Awaji Earthquake. DRI has a systematic and comprehensive program on practical knowledge and skills in disaster reduction with reference to the latest research result. Through this training program, DRI aims to contribute to the upgrading of emergency management capacity of the local governments. DRI has two kinds of training programs being offered namely, Intensive Course and International Training Course. Intensive Course is focused on specific theme and central purpose. This is being conducted several times a year and is specifically designed to improve the ability of individuals to deal with disaster situations. The International Training Course is a course wherein participants learn knowledge on disaster management using Japanese system as a practical model and know-how learnt from the Great Hanshin Awaji Earthquake. It is entrusted by the Japan International Cooperation Agency (JICA) targeting various countries and regions in the world. There are four types of courses being offered. The first course is entitled Top Forum. Based on the latest

research results and information on national disaster prevention measures, the heads of local governments discuss the required responses for future major disasters and review how local government crisis management ought to be. This course is specifically designed for governors and directors of local governments. The second course is entitled Management Course, Basic. Focusing on disaster mechanisms and the experiences of the Great Hanshin-Awaji Earthquake, the course provides systematic learning of basic disaster countermeasures and the like for each department. The target participants are personnel of regional public entities responsible for disaster management with less experience. The third course is Management Course, Expert which is conducted through exercise and concrete examples of disaster reduction. This course strengthens the capability to understand ways to cope with large scale disasters comprehensively where various countermeasures should be taken. This course is designed specifically for personnel of regional public entities responsible for disaster management. The fourth course being offered is Management Course, Advanced. Based on the experiences and lessons learnt from the Great Hanshin-Awaji Earthquake, DRI hopes to teach courses about policy oriented decision-making issues that may arise when future large scale disasters strike. This course is aimed at improving the ability of individuals to assist managers of regional public entities. The target participants for this course are personnel of regional public entities responsible for disaster management and who are expected to maintain the effective management of their divisions.

Exchange and Networking. DRI considers itself as an institution which functions as a cross-road of government practitioners, researchers, citizens and business enterprises with experiences and interest in the Earthquake and disaster reduction. DRI provides a venue for encounters of various disciplines and people, as well as for domestic and international cooperation, so as to promote diverse initiatives for mitigating social vulnerability.

➤ ***The Tokyo Rinkai Disaster Prevention Park***

The visit to the Tokyo Rinkai Disaster Prevention Park was the reinforcement of what the Cabinet Office (Disaster Management) talked about regarding the institutionalization of the countermeasures for Tokyo Inland Earthquake in terms of making individuals prepare for such disaster. The Park has a high technology experience for people through the E-Learning Facility. One can learn how to survive for the next 72 hours

right after a disaster occurs since discussions and examples of what to do, what to bring and where to go are being taught.

This high technology or E-Learning Facility is the most appropriate way of educating communities in a mega city about Disaster Prevention, specifically on how to survive for 72 hours before the government emergency response can reach you. This way, individuals become self sufficient on their own during a few hours or even a few days after a disaster strikes.

***G. Disaster Resilient Infrastructure Development and Transportation System:
Hanshin Expressway Company Limited***

One excellent example of mainstreaming disaster risk reduction in infrastructure development and transportation system is tremendously displayed in the build up and operation of Japan Expressways. The Hanshin Expressway Company Limited aims to achieve more advanced expressway management and services especially after the Great Hanshin-Awaji Earthquake. First and foremost, the Hanshin Expressways are a network of high- speed motorways in the Osaka, Hyogo and Kyoto areas of Japan. With a total of extension of 245.7 kilometers and daily traffic of 860,000 vehicles, Hanshin Expressways serve as main arteries for transportation in the Kansai metropolitan area. Hanshin Expressways make one of the key components of Kansai socio-economic infrastructure, indispensable to the people's daily life and most essential to the region's economic development. The company has three core operations and activities. One is providing safe and secure road services by carrying out maintenance, management; traffic safety measures; prevention of toll violation; and comprehensive disaster preparedness measures. Second is creating a comfortable network of expressways. While developing new expressways, Hanshin Expressway implements various measures to alleviate congestion, improve traveler information provision, and develop more attractive rest areas in order to realize comfortable network expressways through expressway network development; shift of toll charge system; congestion mitigation; flatness improvement of road surface; provision of easier-to-understand information; rest area improvement; and development of off-road rest areas. Third is engaging with customers and communities by placing importance on communicating with customers and local communities as well as implements a variety of social responsibility activities, including environmental and aesthetic measures. To achieve this, the company puts emphasis on communication with

customers and local communities; environmental and aesthetic considerations; active promotion of international activities; incorporation of customer views; and conducting diverse services deriving from expressway operations. With greater efforts on ensuring safe and secure travel, roadway maintenance and management is rigorously implemented. Hanshin expressway carries out daily traffic patrol and maintenance activities to keep the expressways in good condition and to ensure the safety, security, and comfort for expressway users and roadside residents. An information management system is utilized to ascertain current expressway structural conditions prior to preparing maintenance and repair plans to ensure maximum efficiency. For traffic safety measures, Hanshin Expressway formulated the Traffic Safety Measure Action Program in 2007 and carried out traffic safety measures to year 2009. As a result, traffic accidents decreased by 1,220 in 2009 which exceeded the target reduction of 1,000. There is a new action program being prepared in order to achieve further reductions in traffic accidents and in the future, measures focused on route comprehension and driver behavior will also be introduced in addition to traditional measures on safety devices for accident-prone sites. On comprehensive disaster preparedness measures, lessons learned from the damages caused by South Hyogo Prefecture earthquake, the Hanshin Expressway has retrofitted Expressway bridges to ensure their resistance to earthquakes and prevent their collapse. Two types of earthquake movements-a large scale earthquake associated with plate boundaries (such as earthquakes projected to occur in the Tokai and Tonankai areas in the near future) and an inland crustal earthquake such as the South Hyogo Prefecture Earthquake)-were assumed for the retrofitting. Using the lessons learned in 1995 Great Earthquake, Hanshin Expressways Management is fully prepared to carry out post-quake emergency recovery operations to enable speedy recovery of bridge and road functions. Hanshin Expressway likewise monitors earthquakes, typhoons, and other weather conditions on a 24-hour basis and provides necessary information to drivers so that they can use expressways without worry. Part of their disaster preparedness activities is aimed at imparting to future generations the experience that Hanshin Expressway underwent during the 1995 Great Earthquake, including damages incurred and recovery operations carried out.

Hanshin Expressway has actively adopted seismic isolation and vibration dampening technologies that are best suited to the structural properties of individual bridges to achieve earthquake resistance in an economic and efficient manner. The Minato Ohashi bridge, is an example of a bridge structure that uses seismic isolation sliding

bearings instead of metal bearings supporting the bridge deck on which vehicles run to decrease the effect of earthquakes and thus protect the main truss, which constitutes the bridge's framework, from damage. Further on disaster preparedness systems and procedures for disaster preparedness while taking structural anti-seismic measures. It has formulated a Business Continuity Plan to be put into effect in the event of a major earthquake with seismic intensity of 5 or stronger (according to the Japanese Meteorological Agency). The plan includes guidelines on post-disaster actions to take in order to ensure safety, including rescue work, and to facilitate disaster recovery operations by establishing emergency transport routes. The Traffic Control Center is responsible for investigating post-disaster damage levels and weather conditions on a 24-hour basis to provide relevant information to customers and provide other support. The Hanshin Expressway Museum plays a key institution in informing the present and future generations about the lessons learned during the 1995 Great Earthquake. Structures of Hanshin Expressway that were damaged during that time are on display so that the experiences of post-earthquake disaster and recovery operations will be passed on to future generations.

H. Higher Learning Institutions' Role in Fostering a High Level Community Disaster Risk Reduction

The Kobe University Office for the Reconstruction Support and the Research of Disaster Science plays a very vital role in fostering a high level of disaster reduction especially after the unprecedented earthquake on March 11, 2011 which has brought greatest grief and sorrow ever to the Japanese people as described by the President of the University in one of his messages. Further, according to him, due to the accident at Fukushima nuclear power plant, many people are still forced to live inconvenient lives even after almost more than a year and a half has passed since the disaster. Kobe University had greatly suffered itself during the Great Hanshin-Awaji Earthquake in January 17, 1995 and warm support came from people all over Japan to include people in the Tohoku and Kanto regions. As such, Kobe University is indebted to the warm support at the time. In the wave of Tohoku Earthquake, Kobe University immediately began to send relief supplies and technical staff to Tohoku University in the spirit of its experience based on lessons learned from Kobe Earthquake in 1995. Since then, the University has been actively engaged in various activities including organization of the disaster prevention symposia and publication of the Kobe University's Proposals for Reconstruction to support the suffered people and the recovery of the region. Kobe

University, together with Tohoku University, also engaged in collaborative support activities which initially began by signing a memorandum for broader framework to cooperate in disaster science. As such, Kobe University has launched the Office for Reconstruction Support and the Research of Disaster Science, in order to promote academic research, cultivate human resources in the fields of disaster science, and contribute to the society. The missions of this newly created Office include supporting reconstruction activities and research groups, and organizing disaster related symposia.

Although the scale and impact of the Great East Japan Earthquake was far beyond the Great Hanshin-Awaji Earthquake, Kobe University is determined to bring all the knowledge and insights through the strong connection with other universities, research institutions, and government bodies, and continue to support the afflicted people and the reconstruction of the disaster-hit area. These efforts hope to find solutions of common issues surrounding the disaster reconstruction in the world. All in all, the Office aims to support recovery from the Great East Japan Earthquake in the suffered areas, conduct research in the field of disaster science and contribute to solve the common issues for all human beings during disaster restoration, including expert education and social contribution. As the Office operational policies, the collaboration agreement between Kobe University and Tohoku University states that a continued support to various groups engaged in reconstruction activities at the suffered areas with the help of other universities and municipal governments in the Tohoku region and at the same time, continue to investigate what are needed in the suffered areas especially until the present times and offer support based on the lessons learned through the recovery from the Great Hanshin-Awaji Earthquake.

1. Community Involvement in the Recovery Process: Lessons Learned from the Great East Japan Earthquake

Community involvement in the recovery process is highlighted in the various presentations on lessons learned from the Great East Japan Earthquake. On our trip to Higashimatsushima City, we visited the area for Seaweed (Nori) Farming, a government-funded recovery project to



address the provision of livelihood for the communities affected by the tsunami during the Great East Japan Earthquake. According to our guide, before the March 11, 2011 earthquake, each family has seaweed farming as their livelihood. Now, they have adopted a new system which is a collaboration of 12 families affected by the tsunami. With the new technology provided to them, they can



produce 80,000 products per day as compared to before the earthquake which is only 40-50,000 products/day from the said area. In another area, there are different flavored Nori and well-packaged ready for distribution to the consumers. In the nearby area, there are also people who are engaged in debris-collection and processing as part of the recovery project.]

Relocation sites and resettlement areas have been identified and the filling of land for elevation has already started. In one of the resettlement sites, about 600 houses will be built but the government has not decided yet as who will be the respective owners of the houses. We had also the opportunity to see the temporary shelters of 30 families. We were brought to the temporary community



center designed by a famous Japanese architecture. A 75-year old grandmother shared her experienced during the earthquake and tsunami. As translated by Prof. Rudyante, she still cannot sleep properly in the nights because of what happened and she is taking medicines to keep her sleep every night. The only problem she mentioned about the temporary shelter is that the noise which comes from children of the affected families.

J. A Voice of the Community: Community Radio FMYY and Takatori Community Center

Radio FMYY in Nagata was established after the Great Hanshin Awaji Earthquake in

1995 by two Korean nationals living in Nagata during that time. This was initially intended to offer consolation to the victims of the earthquake who have lost their families. Hearing a familiar voice and music alleviate the suffering of the minorities after the earthquake. Eventually, the radio has become an outlet for the local and foreign people in Nagata to get information after the disaster occurred like as to where to get relief supplies or official information about the situation. Now, FMYT broadcasts in 10 different languages to the local community and is one of many NGOs that joined together in a single community structure named Takatori Community Center.

After the Great East Japan Earthquake in March 2011, twenty-two new community radios were set up and being utilized as an avenue where the communities can get the latest information about the updates of the recovery plan and status done by the government. Government officials talk about the recovery process on air and the people get to be informed and they also monitor the progress of the recovery efforts. The community radio has provided a two-way mode of communication from the government officials to the communities and vice versa.

A community radio station has a low output frequency that covers relatively a small area where the signal can be received. The radio is resilient during disasters when communications infrastructure and disaster wireless system are destroyed and the means to pass on information to disaster victims is lost. The radio is not affected by large scale blackouts during disasters because and even if the equipment gets damaged, it is relatively easy to put it back into operation. Low output radio station can play a major role in providing detailed disaster information needed by victims in particular areas because the information is collected by the residents themselves to be shared with their local listeners.

VI. Analysis and Recommendations

The Philippine Disaster Risk Reduction and Management Act of 2010 is paving the way for every stakeholder in the Philippines to pursue disaster risk reduction and management, integrate them in the local and national development process and build a resilient communities for the country's sustainable development. Although the country's DRR efforts have gained a lot of recognition in the past until the present, a great number of development projects with mainstreamed disaster risk reduction are yet to be realized. Government agencies whose roles are equally important in shaping the country's resilience are already identified as provided for by the Republic Act 10121. The Climate Change Commission is the lead agency in promoting the country's climate change adaptation measures with emphasis on the importance of the locally or community-driven DRRM programs. The Department of Science and Technology has continually developed the hydro-meteorological hazard maps in the country which serves as a critical tool in preventing flood-related incidents. The Department of Environment and Natural Resources-Mines and Geosciences Bureau (DENR-MGB) takes the lead in the geo-hazard mapping of the country which serves as a basis for preventing and mitigating the impacts of rain-induced landslides and floods. The DOST-PHIVOLCS or Philippine Institute of Volcanology and Seismology takes the lead in seismological hazard-mapping in the country which serves as a tool in preparing for and mitigating the impacts of earthquakes, volcanic eruption and tsunami. These agencies continuously perform their respective mandates under RA 10121. However, these tools need to be constantly communicated with and understood by the communities. In doing this, the cooperation and support of local disaster risk reduction and management councils play an important role. This will pave the way for the construction of resilient infrastructures such as roads, bridges, dams, buildings, schools, hospitals, and also for the business community to prepare for their business continuity plan. The Office of Civil Defense has an equally important and critical role in achieving the goal of resilience. Since the OCD has the primary mission of administering a comprehensive national civil defense national civil defense and disaster risk reduction and management program by providing leadership in the continuous development of strategic and systematic approaches and measures to reduce the vulnerabilities and risks to hazards and manage the consequences of disasters shall continue to embark on its programs, projects and activities in collaboration with various stakeholders from the national down to the grassroots level. Everyone has a role to play in creating a resilient community and eventually a resilient nation.

Japan and Philippines both have a long history of dealing with risks and hazards. In Japan, DRR is mainstreamed in their education system, infrastructure development, business sector, and in their way of life as a result of the past disasters which brought severe devastation in the lives and properties of the Japanese. After every disaster, Japanese authorities, organizations and communities sit down, discuss lessons learned, document them, and make revisions and amendments in their plans, laws and system for further improvement.

The Philippines disaster management system was also shaped by the impacts of natural and human-made disasters which created havoc in the country, but the present law, RA 10121 will pave the way for the mainstreaming of DRR in all aspects of the Filipino way of life. Implementing the provisions of RA 10121 poses a challenge for all Filipinos in our pursuit of safer, adaptive and disaster-resilient communities with a shared experience of national development. However, the role of the business community, the private sector and corporations must be actively engaged in the country's pursuit for resilience and development.

Philippines has yet to deal with the issue on poverty since the poor are considered to be the most vulnerable especially when disaster strikes. Section 3, letter (f) of the Implementing Rules and regulations (IRR) of RA 10121 posits a challenge for the government to adopt and implement a coherent, comprehensive, integrated, efficient and responsive disaster risk reduction program incorporated in the development plan at various levels adhering to the principles of good governance within the context of poverty alleviation and environmental protection.

In doing so, we need to reach out to more communities, strengthen their organizations and institutionalize DRR agenda in their respective thrusts. Japan's many jichikai or community-based organizations help their community members cope with the stresses of coping with long stay in the temporary or transition shelters after the March 11, 2011 disaster. These organizations play a major role even in the pre-disaster, during disaster and post-disaster situations.

As I have elaborated earlier, Japan has become the champion of disaster risk reduction as a country because it has long institutionalized the combination of self-help efforts rooted in the awareness of the people and business corporations with the mutual-help

efforts of various community-based organizations supported by the public-help efforts of the national and local governments. When the Great East Japan earthquake hit on March 11, 2011 with a magnitude 9, all train system including the bullet trains stopped safely all over Japan. Millions of commuters were stranded on that day and as a result, the government is working on a system where all business sector will be responsible for their own personnel and clientele when such situation will occur again in the future. But to top it all, the government is advocating for a 72-hour survival and self sufficiency of every individual after a disaster strikes one of their proactive disaster risk reduction measures.

In creating a resilient communities and nation, government policies, laws and regulations play a major role, coupled with business corporate engagement, continuous learning and education and active support and cooperation from individuals, groups and other related organizations. Making a disaster resilient nation starts with nurturing communities to make them resilient against any disaster or emergency.

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