



**University of the Philippines Manila
THE HEALTH SCIENCES CENTER
COLLEGE OF NURSING**

*World Health Organization Collaborating Center for Nursing Leadership and Development
Commission on Higher Education Center of Excellence*

Sotejo Hall, Pedro Gil St., Ermita, Manila
Tel.: (632)523-1472 / Telefax: (632)523-1485



**DISASTER NURSING (N 110)
STUDY GUIDE**

UNDERSTANDING EMERGENCIES AND DISASTERS

Introduction

Hello students!

“Our technological powers increase, but the side effects and potential hazards also escalate” ~ ~ Alvin Toffler

(American writer, futurist, and businessman known for his works discussing modern technologies, including the digital revolution and the communication revolution, with emphasis on their effects on cultures worldwide Wikipedia)

In any endeavor, especially when it involves decision-making and implementation of agreed-upon plans and strategies, those involved (at all levels) should be able to understand each other through a common language, terminologies and common platform. This will enable not only understanding but better participation and action of all stakeholders. This is likewise important in disaster risk reduction and management. Shared frameworks and plans provide a common reference point that enable people to interpret and understand one another, and serve as take-off points for implementing plans. In addition to promoting a common understanding on the subject for use by the public, authorities, and practitioners, they can serve to clarify old and new concepts for present and future use. The disaster-related terminologies and concepts are central to the contemporary understanding and evolving practice of disaster risk reduction, and also include emerging concepts that are of growing professional relevance (United Nations Office for Disaster Risk Reduction (UNDRR), 2017).

This study guide presents the basic concepts and terminologies in use in disaster risk reduction and management. It also presents the international and local disaster management frameworks that serve as basis for policy development, decision-making and formulation of plans and strategies to reduce the negative impact of disasters for a sustainable development in and across countries. These will be helpful throughout the disaster continuum phases.

Learning Outcomes

At the end of the module, you should be able to:

1. Differentiate among the types of hazards.
2. Define basic terminologies in disaster management
3. Describe international and local disaster management frameworks, in terms of: structure, components, process and activities



Concept Outline

Classification of hazards

Importance of defining hazards for risk-informed decision-making and risk reduction. An important goal in effective disaster management is to enable people at risk to take informed decisions so that they can protect themselves and their loved ones. The exchange of real-time information, advice including opinions between experts, managers and the people facing threats to their health, economic or social well-being is made possible when they understand the situation because they speak the same language. The same goes with learning new knowledge or skills, we define terms to facilitate communication and knowledge-exchange. Case in point is the failure to evacuate people especially those in the coastal areas before Super Typhoon Yolanda hit the country because the use of the term “**storm surge**” to warn the public was not understood (McPherson & Counahan, 2015).

Better definitions and categorization will not only ensure better understanding and awareness, but will facilitate improved measurement or monitoring of hazards so that critical information related to these can be effectively taken up in databases. This will enhance disaster risk reduction and estimation of losses from disasters. Aside from definitions, standardization of hazard names is likewise needed as part of basic risk assessment, monitoring and management of associated risks, and communication to the people at risk.

Definition of hazard. Based on the United Nations Disaster Risk Reduction (UNDRR) definition (United Nations Disaster Risk Reduction (UNDRR) and International Science Council (ISC), 2020), hazard refers to **“a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.”** The definition looks into the relationship among hazard, exposure, vulnerability and capacity: “‘hazard’ is the potential occurrence of an event within a prescribed time and space; ‘exposure’ constitutes the assets of interest and at risk (such as the environment, the economy, buildings, or people); ‘vulnerability’ is the susceptibility of those assets to damage or impact to a hazard; and ‘capacity’ is the “combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience” (International Federation of Red Cross and Red Crescent Societies - IFRC, 2020)

Hazard vs hazard event. An important distinction has to be made between a hazard and a hazard event. While a hazard “may cause loss of life, injury or other health impacts, property

damage, social and economic disruption or environmental degradation”, a (hazard event or) hazardous event is the “manifestation of a hazard in a particular place during a particular period of time” (United Nations Disaster Risk Reduction (UNDRR) and International Science Council (ISC), 2020). In this context, a hazard event can occur without human consequences (e.g., a tree falling in the woods when no-one is there or a magnitude 9 earthquake occurring in a desert where no-one is living).

What makes a hazard? Operational criteria for inclusion in the hazard list.

The UN proposed a list of inclusion criteria for hazards, which looks into: the potential to impact a community, the availability of proactive and reactive measures, and whether a hazard has measurable spatial and temporal components. The rationale for these criteria can be read in the UNDRR technical report. To initiate application of the inclusion criteria, these were translated into specific questions:

1. Is it a hazard according to the UN General Assembly definition?
2. Does it have an impact on the functioning of a community?
3. Are proactive and reactive measures available to manage the hazard?
4. Does the hazard have measurable spatial and temporal components?
5. Is it a complex hazard?

Examples applying the above criteria/questions can be found in [here](#).

Deepening Your Understanding

Characteristics of hazards. The fourth question in the inclusion criteria above mentions specific components or characteristics to describe natural hazards in order to understand them better. These include magnitude or intensity, speed of onset, duration, and the area they cover (spatial scale).

Further explanation and specific examples related to these characteristics. (United Nations Office of Disaster Risk Reduction (UNDRR), n.d.). [Hazard](#).

The effects of the interaction of hazard with the community can be compounded by human activity, thus its inclusion in the definition of hazard. The UNDRR report (2020) recognizes that some hazards are created or influenced by humans. *“Earthquakes are nominally considered a natural hazard, but can also be induced by human activity such as mining or fluid injection for enhanced oil recovery. Tropical cyclone frequencies can increase due to climate change, and floods may become more severe due to soil degradation from deforestation. Informal settlement can be seen as a vulnerability in the context of flood damage, but a hazard in the context of urban development.”* In the previous disasters that occurred in the country (or globally), can you identify which ones may have been influenced in some ways by human activity?

List of hazards. The compiled hazard list of the UNDRR report is open-ended for various experts may have different views on hazard classification. In total, 302 hazards were included in the list (see Annex of the UNDRR full report) with 88 biological hazards, 60 hydrometeorological hazards, 53 technological hazards, 35 geohazards, 25 chemical hazards, 24 environmental hazards, 9 extraterrestrial hazards and 8 societal hazards. For purposes of classification, the report categorized these into hazard clusters.

<u>Hazard Clusters</u>	Description
1. Meteorological and hydrological hazards	<ul style="list-style-type: none"> those resulting from the state and behavior of the Earth's atmosphere its interaction with the land and oceans the weather and climate it produces and the resulting distribution of water resources. E.g., include tropical cyclones, drought, riverine floods, and heatwaves.
2. Extraterrestrial hazards	<ul style="list-style-type: none"> those originating outside the Earth, such as asteroid and meteorite impacts or solar flares.
3. Geohazards	<ul style="list-style-type: none"> Of geological origin, divided into three hazard clusters: <u>Seismogenic (or earthquakes) and volcanogenic</u> – results from Earth's internal geophysical processes <u>shallow geohazards</u> – results from surface or near-surface processes, generally resulting in erosion or some type of mass movement. These may give rise to a wide range of other hazards
4. Environmental hazards	<ul style="list-style-type: none"> Arise through degradation (or loss of utility) of the natural systems and ecosystem services (affecting air, water, land, and biodiversity) upon which humanity depends. Examples include: biodiversity loss, land salination, loss of permafrost, and the marine equivalents – including loss of sea ice.
5. Chemical hazards	<ul style="list-style-type: none"> Include those in the industry, agriculture and transport, with people exposed to chemicals both of natural and human origin; both with immediate (acute) and chronic effects The CBRNE (chemical, biological, radiation, nuclear, or explosion) hazard cluster is wider than military weapons, and includes endemic diseases, epidemics, industrial chemicals, explosion hazards, pollution, and terrorist threats.
6. Biological hazards	<ul style="list-style-type: none"> cover a range of hazards of organic origin, can cause significant loss of life, affecting people and animals at the population level, as well as plants, crops, livestock, and endangered fauna and flora, and can lead to severe economic and environmental losses include pathogenic microorganisms, and toxins and bioactive substances that occur naturally or are deliberately (lab-produced) or unintentionally released

<u>Hazard Clusters</u>	Description
	<ul style="list-style-type: none"> ▪ Bacteria, viruses, parasites, venomous animals and mosquitoes carrying disease-causing agents ▪ Exposure to zoonotic pathogens is often the source of emerging infectious diseases in humans
7. Technological hazards	<ul style="list-style-type: none"> ▪ arise from the possibility of failure of an existing technology as well as from emerging technologies ▪ Such failure can undermine national interests such as state security, to economics, health, and basic human needs. ▪ involve all transport systems (land, sea, air) and can affect the infrastructure that supports these systems as public and private services, and ICT-related hazards
8. Societal hazards	<ul style="list-style-type: none"> ▪ brought about entirely or predominantly by human activities and choices, with the potential to endanger exposed populations and environments. ▪ derived from socio-political, economic activity, cultural activity and human mobility and the use of technology, but also of societal behavior – either intentional or unintentional.
**Refer to Annex 6 of the UNDRR report for the Initial hazard list	

Watch, Observe and Learn

Watch the video on, “[Five types of hazards](#).” Presented by UNDRR, the video shows the major hazards countries should watch out for to be able to mitigate their effects and plan before a disaster occurs. Many of these as could be seen are highly influenced by human activity.

United Nations Office for Disaster Risk Reduction, July 28, 2020. Five types of hazards.

Using the hazard list. As mentioned above, “*the hazard list establishes a common basis for monitoring and cataloguing hazard information, and for informing disaster risk reduction and loss data collection, disaster warnings and response, risk mitigation and reduction, and risk communication, including public awareness*” (United Nations Disaster Risk Reduction (UNDRR) and International Science Council (ISC), 2020). This will be useful for reporting and monitoring of national governments and communicating details related to risks, loss and damage. It can help establish a common platform or mechanism for use in multi-

hazard early warning systems (MHEWS) in order to deliver impact-based warnings. It can also serve to bridge decision-makers and scientists in knowledge generation and improve science-policy interface to improve the practicability of this knowledge.

Deepening Your Understanding

The full article/report of the preceding discussion can be found in the citation below.

United Nations Disaster Risk Reduction (UNDRR) and International Science Council (ISC). (2020). [Hazard Definition & Classification Review: Technical Report](#). Geneva: United Nations. Retrieved from

UN terminologies in disaster management

In 2009, the United Nations International Strategy for Disaster Reduction (UNISDR) published a compilation of disaster terminologies with the aim of promoting common understanding and common usage of disaster risk reduction concepts and assisting disaster risk reduction efforts of various stakeholders including the public. (United Nations Office for Disaster Risk Reduction (UNDRR), 2017; United Nations International Strategy for Disaster Reduction (UNISDR), 2009). This was updated to remain coherent with the Sendai Framework for Disaster Risk Reduction 2015-2030 and with the Sustainable Development Goals (SDGs).

The following are the basic terms you need to become familiar with in reference to disaster risk reduction and management:

- ❖ Hazard - A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. *(Refer to the extensive discussion above.)*
 - Refers to a ***potential threat***
- ❖ **Risk** - The combination of the probability of an event and its negative consequences. It refers to the interaction of exposure to a hazard (potential threat, or extreme natural event) and the vulnerability of societies (Bündnis Entwicklung Hilft, 2020).
 - Refers to ***potential loss or negative consequence***
- ❖ Exposure - The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas. They are thereby subject to potential losses.
- ❖ Vulnerability - The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards. It also includes the lack of coping capacity and lack of adaptation capacity.
- ❖ Susceptibility is understood as the likelihood of generally suffering damage in case of an extreme natural event. Susceptibility describes structural characteristics and framework conditions of a society (Bündnis Entwicklung Hilft, 2020).

- ❖ **Capacity** - The combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience. Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management.
 - Coping capacity is the ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters. It requires continuing awareness, resources and good management, both in normal times as well as during disasters or adverse conditions. Coping capacities contribute to the reduction of disaster risks.
- ❖ Adaptation - The adjustment in natural or human systems in response to actual or expected climatic (and non-climatic) stimuli or their effects, which moderates harm or exploits beneficial opportunities. This includes measures and strategies that deal with the negative impacts of natural hazards and climate change in the future.

“Not all-natural hazards lead to disasters and while the intensity and frequency of hazards is clearly significant, these are not the sole determinants of risk. Disaster risk is a function of exposure to hazards as well as the vulnerability of people to climate-related hazards and their capacity to manage shocks” (International Federation of Red Cross and Red Crescent Societies, 2020). We can seek to prevent hazards from leading to disasters by reducing risks (created by a combination of a hazard, exposure and vulnerability) and promoting resilience (Mizutori, 2020, as cited in IFRC, 2020).

- ❖ **Disaster** - A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.
 - The effect of the disaster can be immediate and localized, but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighboring jurisdictions, or those at the national or international levels.

Take note of the underlined phrases as these are essential elements that make a disaster event or situation.

- Effects of Disaster:
 - **Disaster damage** occurs during and immediately after the disaster. This is usually measured in physical units (e.g., square meters of housing, kilometers of roads, etc.), and describes the total or partial destruction of physical assets, the disruption of basic services and damages to sources of livelihood in the affected area.

- **Disaster impact** is the total effect, including negative effects (e.g., economic losses) and positive effects (e.g., economic gains), of a hazardous event or a disaster. The term includes economic, human and environmental impacts, and may include death, injuries, disease and other negative effects on human physical, mental and social well-being.
- ❖ Emergency - is sometimes *used interchangeably with the term disaster*, as, for example, in the context of biological and technological hazards or health emergencies, which, however, can also relate to hazardous events that do not result in the serious disruption of the functioning of a community or society.

Given a list of events or situations, you should be able to distinguish between a disaster and an emergency.

Deepening Your Understanding

Read the web article, "[Time to say goodbye to “natural disasters”](#)," by Mami Mizutori. The writer argues that ...” there is no such thing as a natural disaster.” *What explanation does the author give with this statement? What is the **#NoNaturalDisasters Campaign** all about? What does it seek to promote?*

You will also encounter the following terms: Disaster management, disaster risk reduction and disaster risk management

- ❖ Disaster management – refers to the organization, planning and application of measures preparing for, responding to and recovering from disasters.
 - Disaster management may not completely avert or eliminate the threats; it focuses on creating and implementing preparedness and other plans to decrease the impact of disasters and “build back better”. Failure to create and apply a plan could lead to damage to life, assets and lost revenue.
- ❖ Disaster risk reduction – refers to the policy objective of disaster risk management, and its goals and objectives are defined in disaster risk reduction strategies and plans.
 - In line with the Sendai Framework for Disaster Risk Reduction 2015-2030, these should be aimed at preventing the creation of disaster risk, the reduction of existing risk and the strengthening of economic, social, health and environmental resilience.
- ❖ Disaster risk management – refers to the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

There are two other terms worth mentioning as these are commonly used in disaster management.

- ❖ Resilience – refers to the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Point of Reflection

The Filipino people have been described as a “resilient people,” given the disasters and calamities that has befallen the country for several years. Is this the same resilience described above? How would you describe it in your terms?

- ❖ Build Back Better (BBB) - The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment.
 - In support of the Sendai Framework, BBB is an approach to post-disaster recovery that reduces vulnerability to future disasters and builds community resilience to address physical, social, environmental, and economic vulnerabilities and shocks.
 - The concept was proposed by the Japanese delegation as a holistic concept which is generally understood to use the disaster as a trigger to create more resilient nations and societies than before.

UN disaster management frameworks

Several policies and frameworks have evolved over time to provide better understanding of hazards and their related impacts in disasters. A proactive approach towards efforts to reduce the effects of disasters was promoted in the **Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation** adopted during the first World Conference on Natural Disaster Reduction in 1994 (Zimmermann & Keiler, 2015). The strategy focused on the close links between risk, disaster reduction, sustainable development, environmental protection, and poverty alleviation became apparent.

The UN declared the decade 1990 – 1999 as the International Decade for Natural Disaster Reduction (IDNDR) to recognize that disaster reduction was a social and economic imperative that would take a long time to fulfill. The **International Strategy for Disaster Reduction** (ISDR) is a global framework established within the United Nations for the promotion of action to reduce social vulnerability and risks of natural hazards and related technological and environmental disasters, by facilitating an inter-agency effort among governments and communities in disaster-prone areas. It called for a “*shift from a culture of reaction to a culture of prevention*” (UN/ISDR, 1999).

During the second World Conference on Disaster Reduction in 2005, 168 states adopted the first global framework for DRR – the **Hyogo Framework for Action 2005–2015** (HFA 2005).

It consists of 3 strategic goals, a number of guiding principles, 5 priorities for action (PAs), and considerations for implementation and follow-up. With a goal to substantially reduce disaster losses by 2015 in peoples' lives, and in the social, economic, and environmental assets of communities and countries, the HFA served to catalyze national and local efforts and strengthen international cooperation through the development of regional strategies, plans and policies (United Nations Office of Disaster Risk Reduction (UNDRR), 2005; Zimmermann & Keiler, 2015).

A more comprehensive approach was articulated in the **Sendai Framework for Disaster Risk Reduction 2015–2030**, which identified a wider set of hazards, and promised stronger accountability to track progress in implementing its seven targets (International Federation of Red Cross and Red Crescent Societies, 2020).



Twenty five years of international commitments to disaster risk reduction (United Nations Disaster Risk Reduction (UNDRR) and International Science Council (ISC), 2020)

Other Frameworks and documents

The **Sustainable Development Goals (SDGs)**, also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. It includes 17 integrated goals aimed towards development by securing a balance in social, economic and environmental sustainability (United Nations Development Programme (UNDP), 2015; United Nations Department of Economic and Social Affairs, n.d.). Disaster risk reduction (DRR) is an integral part of social and economic development, and is essential if development is to be sustainable for the future. There are several SDGs and targets that aim to contribute to reducing disaster and building resilience (United Nations Department of Economic and Social Affairs, n.d.).

The **Paris Agreement** is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels (United Nations Climate Change, n.d.).

The adoption in 2015 of the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on climate change, and the 2030 Sustainable Development Agenda provides a clear mandate for increased coherence in countries' approaches to climate and disaster risk reduction (OECD, 2020).

The Philippine Framework on Disaster Risk Reduction

The ratification of **RA 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010** and **RA 9729 or the Climate Change Act of 2009** established a proactive national framework strategy and plans and made available the necessary institutional structures and resources required for DRRM and climate change mitigation and adaptation in the country. RA 10121 mandated the crafting and implementation of the National Disaster Risk Management Framework and the National Disaster Risk Reduction Management Plan (NDRRMP). Under the core value of safer, adaptive, and disaster-resilient communities, the NDRRMP defines applicable initiatives under four thematic areas: (1) disaster prevention and mitigation, (2) disaster preparedness, (3) disaster response, and (4) disaster rehabilitation and recovery (Domingo & Olaguera, 2017).

The **NDRRMP**, as crafted under RA 10121, outlined the way toward mainstreaming of DRRM and climate change action at various levels of policy formulation, development planning, budgeting, and governance. It also shows that efforts related to disaster risk reduction are not isolated activities but are closely linked to the country's development process and should converge with related policies and programs to contribute towards attaining a sustainable development.

The National Disaster Risk Reduction and Management Council (NDRRMC) has adopted the **Enhanced National DRRM Framework and Plan (2020-2030)** to include new types of risks, global best practices in DRM, and climate change adaptation principles and lessons learned from recent natural and human-induced disasters. It establishes the linkage between disaster risk reduction and management (DRRM), climate change adaptation (CCA), and human security by focusing on climate and disaster risks. The adoption of these legal frameworks led to a series of DRM initiatives at the national, local, and community level (Office of Civil Defense, <http://www.ocd.gov.ph/index.php/news/press-release/644-4th-quarter-full-council-meeting-on-30-october-2020>).

Deepening Your Understanding

There is a lot of interesting history behind the disaster risk reduction efforts in the Philippines. You can read further on the brief historical background in the file below in addition to the **linked slides**.

Domingo, S. N., & Olaguera, M. D. (2017, May). Have we institutionalized DRRM? *Policy Notes*. Retrieved from <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidspn1712.pdf>

In addition to the historical background, take note of the application of the NDRRM framework from the national level down to the barangay level. This is important for later application in the course especially for the fieldwork.

N110 Lab: Group Worksheet

Impact of disasters

Disaster impact is the total effect, including negative effects (e.g., economic losses) and positive effects (e.g., economic gains), of a hazardous event or a disaster. The term includes economic, human and environmental impacts, and may include death, injuries, disease and other negative effects on human physical, mental and social well-being (United Nations Office for Disaster Risk Reduction (UNDRR), 2017). Identifying and defining the impact of disasters are critical to disaster risk management, and serve as beginning points in disaster impact analysis.

Objective:

1. Identify or define the negative and positive impact of disasters based on core indicators or identified sectors or areas of concern.
2. Provide specific examples illustrating the impact or effect of disasters
3. Summarize the potential implications on health

Instruction: ***This is a group activity.***

1. Using the template provided:
 - a. identify the impact of disaster events (based on the assigned global or local disasters);
 - b. provide an example (data or evidence) of the effects or impact identified, including the name and type of disaster and location/affected area.
 - c. The evidence should be annotated or referenced.
2. From your group work, derive the possible implications to health. (*Just choose 2 or 3 from the effect or impact identified*).
3. A shared worksheet (in Google doc) will be provided per group through a link to be posted in the course site. Only the group members assigned to that worksheet will have access including the assigned faculty for giving comments/suggestions. Your contribution to the assignment will be monitored through the document version history and comment history.
4. For the *final version of your assignment*, **download and post this in the N110 course submission bin**. The format for this assignment will be uploaded in the course site.
5. Cite your references using the APA format.

Expected Output: An annotated tabular presentation of the impact of disaster.

Submission Date:

September 16, 2022

References

- Athawes, S. (2018, November 8). *News: Five years on: How Haiyan shocked the world*. Retrieved from Preventionweb.net: <https://www.preventionweb.net/news/view/61777>
- Bündnis Entwicklung Hilft. (2020). *WorldRiskReport 2020*. Berlin: Bündnis Entwicklung Hilft. Accessed from: https://weltrisikobericht.de/wpcontent/uploads/2020/12/WRR_2020_online_.pdf
- Domingo, S. N., & Olaguera, M. D. (2017, May). Have we institutionalized DRRM? *Policy Notes*. Retrieved from <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/-pidspn1712.pdf>
- International Federation of Red Cross and Red Crescent Societies. (2020). *World Disasters Report 2020: Come Heat or High Water - Tackling the humanitarian impacts of the climate crisis together*. Geneva: International Federation of Red Cross and Red Crescent Societies. Retrieved from <https://media.ifrc.org/ifrc/world-disaster-report-2020>
- McPherson, M., & Counahan, M. (2015). Responding to Typhoon Haiyan in the Philippines. *Western Pacific Surveillance and Response Journal*, 6 (Suppl 1):1-4. doi:10.5365/wpsar.2015.6.4.HYN_026
- Meyers, T. (2019, December 29). *NEWS HUMANITARIAN CRISIS: 10 Disasters that changed the world*. Retrieved from DirectRelief.org: <https://www.directrelief.org/2019/12/10-disasters-that-changed-the-world/>
- National Disaster Risk Reduction and Management Council (NDRRMC). (2014). *NDRRMC Update: FINAL Report: Effects of Typhoon YOLANDA (HAIYAN)*. Quezon City. Retrieved from http://ndrrmc.gov.ph/attachments/article/1329/-FINAL_REPORT_re_Effects_of_Typhoon_YOLANDA_HAIYAN_06-09NOV2013.pdf
- OECD (2020), *Common Ground Between the Paris Agreement and the Sendai Framework: Climate Change Adaptation and Disaster Risk Reduction*, OECD Publishing, Paris, <https://doi.org/10.1787/3edc8d09-en>
- Oskin, B. (2017, September 13). *Japan Earthquake & Tsunami of 2011: Facts and Information*. Retrieved from LiveScience: [https://www.livescience.com/39110-japan-2011-earthquake-tsunami-facts.html#:~:text=The%20tsunami%20waves%20reached%20run,561%20square%20kilometers\)%20in%20Japan.](https://www.livescience.com/39110-japan-2011-earthquake-tsunami-facts.html#:~:text=The%20tsunami%20waves%20reached%20run,561%20square%20kilometers)%20in%20Japan.)
- Prevention Web. (2015, November). *Top trends in disaster risk*. Retrieved from UNDRR Prevention Web: <https://www.preventionweb.net/risk/trends>
- Rettner, R. (2019, January 17). *News: More than 250,000 people may die each year due to climate change*. Retrieved from LiveScience.com: <https://www.livescience.com/64535-climate-change-health-deaths.html>

- Ritchie, H., & Roser, M. (2019, November). *Natural Disasters*. Retrieved from Our World in Data: <https://ourworldindata.org/natural-disasters#licence>
- Sanchez, M. (2020, December 21). *Risk index for natural disasters Philippines 2020 by type*. Retrieved from Statista.com: <https://www.statista.com/statistics/921036/philippines-risk-index-for-natural-disasters/#:~:text=According%20to%20the%20-World%20Risk,of%209.5%20risk%20index%20points.>
- Satoh, M., Iwamitsu, H., Yamada, E., Kuribayashi, Y., Yamagami-Matsuyama, T., & Yamada, Y. (2018). Disaster Nursing Knowledge and Competencies Among Nursing University Students Participated in Relief Activities Following the 2016 Kumamoto Earthquakes. *SAGE Open Nursing*. doi:<https://doi.org/10.1177/2377960818804918>
- United Nations Climate Change. (n.d.). *The Paris Agreement*. Retrieved from United Nations Climate Change: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- United Nations Department of Economic and Social Affairs. (n.d.). *Disaster Risk Reduction*. Retrieved from Sustainable Development Goals Knowledge Platform: <https://sustainabledevelopment.un.org/topics/disaster-risk-reduction>
- United Nations Development Programme (UNDP). (2015). *Working Together for a New Future*. Retrieved from UNDP: <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>
- United Nations Disaster Risk Reduction (UNDRR) and International Science Council (ISC). (2020). *Hazard Definition & Classification Review: Technical Report*. Geneva: United Nations. Retrieved from <https://council.science/wp-content/uploads/2020/06/UNDRR-Hazard-Report-DIGITAL.pdf>
- UN/ISDR. (1999). *International Strategy for Disaster Reduction A SAFER WORLD in the 21st CENTURY: Disaster and Risk Reduction*. https://www.eird.org/eng/revista/No15_99/pagina2.htm
- United Nations International Strategy for Disaster Reduction (UNISDR). (2009). *2009 UNISDR terminology on disaster risk reduction*. Retrieved from United Nations Office for Disaster Risk Reduction: <https://www.undrr.org/publication/2009-unisdr-terminology-disaster-risk-reduction>
- United Nations Office for Disaster Risk Reduction (UNDRR). (2017). *Terminology*. Retrieved from United Nations Office for Disaster Risk Reduction: <https://www.undrr.org/terminology>
- United Nations Office of Disaster Risk Reduction (UNDRR). (2005). *Hyogo Framework for Action*. Retrieved from PreventionWeb: <https://www.preventionweb.net/sendai-framework/hyogo/>
- United Nations Office of Disaster Risk Reduction (UNDRR). (n.d.). *Hazard*. Retrieved from PreventionWeb: <https://www.preventionweb.net/disaster-risk/risk/hazard/>

World Health Organization & International Council of Nurses (2009) ICN framework of disaster nursing competencies, Geneva, Switzerland: International Council of Nurses.

Zimmermann, M., & Keiler, M. (2015). International Frameworks for Disaster Risk Reduction: Useful Guidance for Sustainable Mountain Development? . *Mountain Research and Development*, 35(2), 195-202. doi:10.1659/MRD-JOURNAL-D-15-0

Prepared by:

Asst. Prof. Bettina D. Evio, RN, MAN
N-110 Course Coordinator
bdevio@up.edu.ph