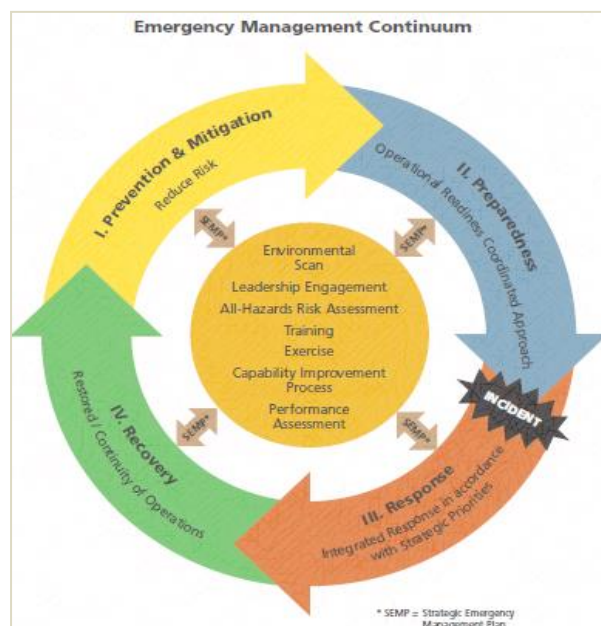


# Medical Emergency Support for Humanitarian Aid workers deployed in conflict zones

## Concepts and Perspectives

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The Humanitarian Aid Community is facing a variety of threats and hazards, from events caused by nature to technological incidents involving system or structural failure, as well as acts of violence or terrorism. While duty stations differ in the specific threats and hazards, each International Non-Governmental Organization's (INGO's) Country office and team must prepare for the situation for which they are at the greatest risk.

During the last decades, the world has witnessed a wide range of natural and man-made disasters, and conflicts. Management of such events involves close coordination between a large number of Organizations. As a consequence, the humanitarian aid sector has grown exponentially, and the global aid spent by diverse actors has increased 400% since 2000 to \$25 billion USD in 2014 and the number of international aid workers has tripled (Hoelscher 2015<sup>1</sup>).

Despite the fact that volunteering for humanitarian aid is an incredibly rewarding experience, however it is well established that international aid and development work is not without its risks. After having been neglected by academic scholarship for a long time, recently aid workers have gained the attention of anthropologists and sociologists (Cook 2007<sup>2</sup>; Heron 2007<sup>3</sup>; Lewis 2008<sup>4</sup>; Fassin 2010<sup>5</sup>; Bornstein 2011<sup>6</sup>; Fechter 2011<sup>7</sup>; Mosse 2011<sup>8</sup>; Fechter 2013<sup>9</sup>). These studies have addressed the identities and subject positions of aid workers (Cook 2007; Heron 2007), the "chronic mobility" of United Nations (UN) staff members (Nowicka 2006<sup>10</sup>), the "protean career's" and the "hero's adventure" of volunteers (Hudson 2006<sup>11</sup>). Humanitarian workers have been characterized as "professional volunteers" (Arvidson 2009)<sup>12</sup>, "selfish altruists" (Vaux 2001)<sup>13</sup> and "parochial cosmopolitans" (Rajak 2011)<sup>14</sup>. Bakhet (2002)<sup>15</sup> found that aid workers were increasingly at risk without being necessarily prepared for work in insecure environments. Moreover, being involved in multiple activities has been identified as one of several risk factors for NGO actors (Fast 2007)<sup>16</sup>.

Humanitarian work is challenging and requires aid-workers to rely on limited resources and to deal with often unpredictable situations in vulnerable and hazardous environments. In addition to being potentially targeted by violence and deadly attacks, several authors have reported that, despite having been briefed, aid workers had not followed preventive measures for their health. Risk-taking behavior has been reported as prevalent among aid workers (Smith 2002)<sup>17</sup>. They engage in risky behavior such as alcohol and other drug use (Dahlgren

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<sup>1</sup> Hoelscher K, Miklian J, Nygård HM (2015). Understanding Attacks on Humanitarian Aid Workers. Peace Research Institute Oslo. [www.prio.org/ConflictTrends](http://www.prio.org/ConflictTrends)

<sup>2</sup> Cook N. (2007). Gender, Identity and Imperialism. Women Development Workers in Pakistan. Basingstoke: Palgrave Macmillan.

<sup>3</sup> Heron B. (2007). Desire for Development: Whiteness, Gender, and the Helping Imperative. Waterloo, Ontario, Wilfrid Laurier University Press.

<sup>4</sup> Lewis D. (2008). "Using Life Histories in Social Policy Research: The Case of Third Sector/Public Sector Boundary Crossing." Journal of Social Policy 37(4): 559-578.

<sup>5</sup> Fassin D, Pandolfini M, Eds. (2010). Contemporary States of Emergency: The Politics of Military and Humanitarian Interventions. New York, Zone Books.

<sup>6</sup> Bornstein E, Redfield P, Eds. (2011). Forces of Compassion: Humanitarianism between Ethics and Politics. Santa Fe, SAR Press.

<sup>7</sup> Fechter AM, Hindman H, Eds. (2011). Inside the Everyday Lives of Development Workers. Challenges and Futures of Aidland. Kumarian.

<sup>8</sup> Mosse D (2011). Adventures in Aidland. Anthropology of Professionals, Berghahn Books.

<sup>9</sup> Fechter AM (2013). Mobility as enabling gender equality? The case of international aid workers. In: Bastia, Tanja (ed.) Migration and inequality. Routledge studies in development economics. Routledge, London.

<sup>10</sup> Nowicka M (2006). Mobility, Space and Social Structuration in the Second Modernity and Beyond. Journal Mobilities 1 (3): 411-435.

<sup>11</sup> Hudson S, Inkson K (2006). Volunteer overseas development workers: The hero's adventure and personal transformation. Career Development International 11(4):304-320.

<sup>12</sup> Arvidson, M. (2009). Ideals, Contradiction and Confusion. NGO Development Workers at the Grassroots. In Ethnographic Practice and Public Aid. Method and Meanings in Development Cooperation, ed. by S. Hagberg and C. Widmark. Uppsala, Uppsala University Library. 45: 215-240.

<sup>13</sup> Vaux T. (2001). The Selfish Altruist. Relief Work in Famine and War. London, Earthscan.

<sup>14</sup> Rajak D, Stirrat J (2011). Parochial Cosmopolitanism and the Power of Nostalgia. In Adventures in Aidland: The Anthropology of Professionals in International development, ed. by D. Mosse. New York & Oxford, Berghahn Books: 161-176.

<sup>15</sup> Bakhet O, Diamond M (2002). Supporting Staff during Crisis and on the Path to Development. In: Sharing the Front Line and the Back Hills, ed. by Y. Danieli. New York, Baywood: 95-100.

<sup>16</sup> Fast L (2007). Characteristics, Context and Risk: NGO Insecurity in Conflict Zones. Disasters 31(2): 130-154.

<sup>17</sup> Smith B (2002). The dangers of aid work. In: Danieli Y, ed. Sharing the front line and the back hills: peacekeepers, humanitarian aid workers and the media in the midst of crisis. Amityville, NY: Baywood, 171-176.

2009)<sup>18</sup>. Depending on status, type of assignment and security situation, they may also encounter high work demand (Martin 2003)<sup>19</sup>, challenging living conditions in guarded guesthouses with less privacy and separation between work and leisure (Roth 2015)<sup>20</sup> with often an important restriction in their movement by curfews (Duffield 2010<sup>21</sup>; 2012<sup>22</sup>). They face a wide range of risks including traffic accidents, landmines, health risks, and traumatic events. It is also well established that aid workers present a higher risk of mental health and behavior problems more than the general population (Cardozo 2012<sup>23</sup>, Gushulak 2018<sup>24</sup>).

However, despite the important investment on awareness, the risks faced by aid workers remain very important. In 2016, 158 major attacks against aid operations occurred resulting in 101 aid-workers killed, 98 wounded and 89 kidnapped (Stoddard 2017)<sup>25</sup>. The International community is also concerned by the disturbing trend of attacks on health facilities. During the period from January 2014 to December 2015, there were 594 reported attacks on health-care workers that resulted in 959 deaths and 1561 injuries in 19 countries with emergencies (WHO 2018)<sup>26</sup>. This bears repeating that providing humanitarian aid is and has always been an increasingly dangerous occupation, and even with the best situational awareness and mitigation strategies reducing the risk of violence to zero is not possible (Stoddard 2017). Aid workers should uphold good health and safety practices at all times based on an objective awareness of real risks at the duty station and to help avoid preventable problems should they occur. However, risk perception among humanitarian was not sufficiently studied despite a substantial body of research in the risk perception field has been carried out and has resulted in major findings (Zhang 2016)<sup>27</sup>.

In the same time, the review of the literature shows that risk management and risk reduction have assumed a major role in Disaster Health management. Examinations of the Hyogo Framework, Humanitarian Reform, the Transformative Agenda, the Global Platform for Disaster Risk Reduction in 2013, and the Sendai Framework for Disaster Risk Reduction 2015-2030 have led to the need to revise the existing models of risk. More generally, risk is defined as the chance or possibility of danger, loss, injury, or other adverse consequences. This definition brings forward the concepts of some sort of sequence of events as well as the consequences if the event occurs. The International Organization<sup>28</sup> for Standardization points out that risk *“often is expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence”*. Likelihood is the chance of something happening, can be measured objectively or subjectively, and can be expressed qualitatively or quantitatively.

As a consequence of the above, the fact is that change in the emergency management sector mandate is both inevitable and necessary. Some of the main factors contributing to the trend toward increased levels of

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<sup>18</sup> Dahlgren AL, DeRoo L, Avril J, Bise G, Loutan L (2009). Health Risks and Risk-Taking Behaviors among International Committee of the Red Cross (ICRC) Expatriates Returning From Humanitarian Missions. *Journal of Travel Medicine* 16 (6): 382–390.

<sup>19</sup> Martin R (2003). An Introduction to NGO Field Security. In *Emergency Relief Operations*, ed. by KM Cahill. New York, Fordham University Press: 225-263.

<sup>20</sup> Roth S (2015). Aid Work as Edgework – Voluntary Risk-Taking and Security in Humanitarian Assistance, Development and Human Rights Work. *Journal of Risk Research* 18 (2): 139 – 155.

<sup>21</sup> Duffield M (2010). Risk-Management and the Fortified Aid Compound: Everyday Life in Post Interventionary Society. *Journal of Intervention and State-building* 4(4): 453-474.

<sup>22</sup> Duffield M (2012). Challenging Environments: Danger, Resilience and the Aid Industry. *Security Dialogue* 43(5): 475-492.

<sup>23</sup> Cardozo B L, Crawford C, Eriksson C, Zhu J, Sabin M. (2012). Psychological Distress, Depression, Anxiety, and Burnout among International Humanitarian Aid Workers: A Longitudinal Study. Available at: PLoS ONE 7(9):

<http://dx.doi.org/10.1371/journal.pone.0044948>

<sup>24</sup> Gushulak BD (2018). Advising Travelers with Specific Needs - Humanitarian Aid Workers.

<https://wwwnc.cdc.gov/travel/yellowbook/2018/advising-travelers-with-specific-needs/humanitarian-aid-workers>

<sup>25</sup> Stoddard A, Harmer A, Czwarnon M (2017). Aid worker security report 2017. Behind the attacks: A look at the perpetrators of violence against aid workers. [www.humanitarianoutcomes.org](http://www.humanitarianoutcomes.org)

<sup>26</sup> WHO, ILO (2018). Occupational health and safety of health workers, emergency responders and other workers in public health emergencies: A manual for protecting health workers and responders. Geneva.

<sup>27</sup> Zhang P, Jetter AJ (2016). Understanding Risk Perception Using Fuzzy Cognitive Maps. Engineering and Technology Management Faculty Publications and Presentations. 113. [https://pdxscholar.library.pdx.edu/etm\\_fac/113](https://pdxscholar.library.pdx.edu/etm_fac/113)

<sup>28</sup> ISO 31000:2018 Risk management - Guidelines & IEC 31010:2009 Risk management - Risk assessment techniques

hazards impacts, such as deployment in conflicts zones, adoption of the concept of peace enforcement<sup>29</sup>, use of non-conventional weapons, exposure to high-risk regions, environmental and climate change, increase in the frequency of complex emergencies, appear to continue at a relatively constant rate and expose the Humanitarian Aid Workers and the UN as a privileged target. In combination, these factors indicate that the task for the emergency management sector in the Humanitarian Aid Community will not only be more complex but also at the same time will increasingly become central issues as International community, UN System, contributing countries and Country Teams search for effective governance solutions.

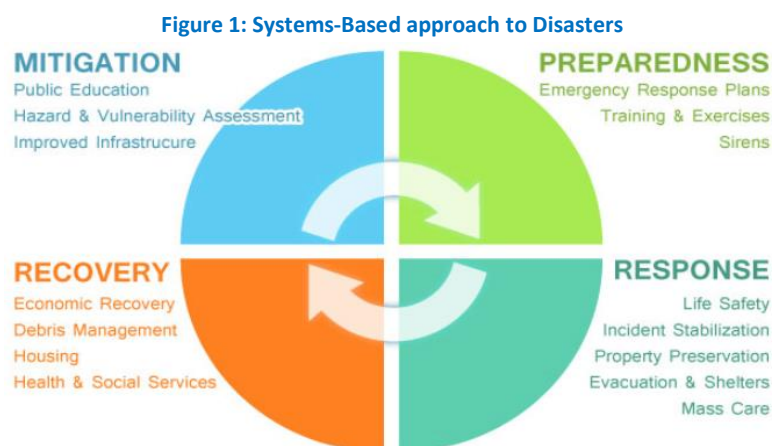
These trends illustrate that the components of emergency management and our approach to support the Humanitarian Aid community need to change from a traditional and often exclusive emergency services fraternity that is typically focused on hazard agent preparedness and response to a far wider consortium of agencies, skills and practices<sup>30</sup>. The transition needs to expand the field to include areas such as sustainable hazard management, community resilience and risk management. This requires a shift from a deterministic orientation (which legitimizes a focus on post-disaster actions like rescue, relief and reconstruction), to one that actively pursues full hazard assessment, identifies concomitant risks, and incorporates hazard reduction and emergency management knowledge directly into related policy areas. This implies the adoption of the essential feature of both the theory and practice of “Risks Reduction” and how Duty stations can be made safer and more resilient from the risks associated with natural and technological hazards. The approach needs to be articulated around the two following main areas:

- Emergency-related Risk Assessment, Mitigation and Preparedness are the responsibility of the entire Country Team, and a key part of the preparedness is planning.
- Planning, based on comprehensive policy and Top management commitment, is the most comprehensive means of creating sustainability and resilience. It is a collaborative process that begins with the DO and UN Agencies Resident Representative, INGOs representatives, Staff Unions, Security Advisors & Analysts, Logisticians, staff members working to build capabilities.

Whatever the specific components might be, and these will vary from a Country team to another, two essential inter-linked components are strategies to promote cooperation among all stakeholders and a whole-of-system approach. This implies the adoption of a robust conceptual model and partner with UNOCHA and major INGOs.

## 1. Conceptual Model

The approach focuses on the basic principles and key components of disaster management and the phases of emergency management: mitigation, preparedness, response, recovery (Figure 1).



<sup>29</sup> Labuda PI (2015). Peacekeeping and Peace Enforcement – Oxford Public International Law: <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e364>

<sup>30</sup> Britton N (2001). A new Emergency Management for the new Millennium? Australian Journal of Emergency Medicine 44 – 54

Integrated emergency management is a key concept WHO (2017)<sup>31</sup>. It embodies an all-threats/hazards approach to the direction, control, and coordination of disasters regardless of their location, size, or complexity, and it goes hand-in-hand with the concept of whole community preparedness. Integrated emergency management is more than a methodology; it is a culture to achieve unity of effort - a way of thinking about emergency management as a joint enterprise. It is intended to create an organizational culture that is critical to achieving unity of effort between all stakeholders and interested parties.

**Emergency management must be integrated into daily decisions, not just during times of disasters.**

Integrated emergency management increases emergency management capability by establishing:

- Prior networks, linkages, and partnerships,
- Communication across organizational and geographical boundaries, enabling all emergency functions to communicate with each other,
- Creative thinking about resource shortfalls,
- Coordinated testing, training, and exercising,
- Improved ability to see the “big picture” for simultaneous responses.

### **Emergency Management Principles**

Emergency management principles help identify and apply agreed-upon practices. The Emergency Management Institute’s Higher Education Project working group<sup>32</sup> identified the following eight principles:

- *Comprehensive* - Emergency managers consider and take into account all threats/hazards, all phases, all stakeholders, and all impacts relevant to disasters,
- *Progressive* - Emergency managers anticipate future disasters and take protective, preventive, and preparatory measures to build disaster-resistant and disaster-resilient communities,
- *Risk-Driven* - Emergency managers use sound risk management principles (threat/hazard identification, risk analysis, and impact analysis) in assigning priorities and resources.
- *Integrated* - Emergency managers ensure unity of effort among all levels of the Organization, local authorities at the duty station/Mission’s AOR and all elements of a community including INGOs,
- *Collaborative* - Emergency managers create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication,
- *Coordinated* - Emergency managers synchronize the activities of all relevant stakeholders to achieve a common purpose,
- *Flexible* - Emergency managers use creative and innovative approaches in solving disaster challenges,
- *Professional* - Emergency managers value a science- and knowledge-based approach based on education, training, experience, ethical practice, public stewardship, and continuous improvement.

The expected dedicated body in charge of emergency preparedness and response will be strongly involved with all partners and stakeholders in the conception and building the Emergency Management framework. However, for the purpose of its daily work and completion of its own tasks, the dedicated body will adopt the terminology of “Emergency Preparedness” that is defined as: “...the knowledge and capacities and organizational systems developed by Top Management, response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent, emerging, or current emergencies.”

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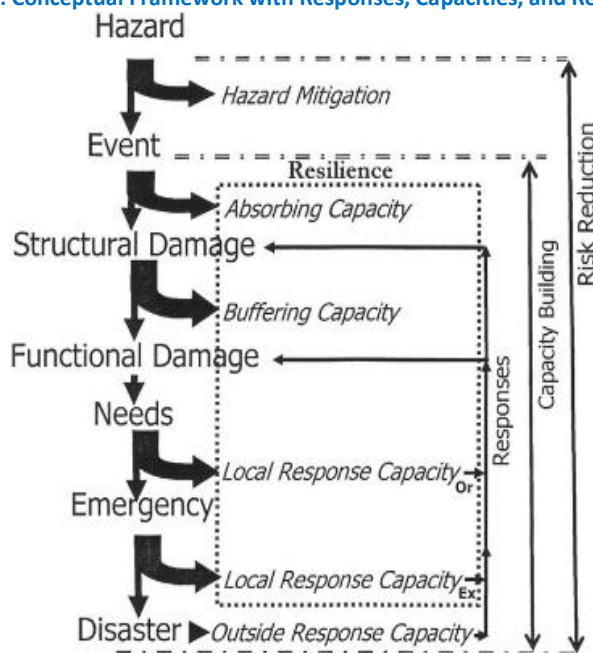
<sup>31</sup> A strategic framework for emergency preparedness: <http://www.who.int/ihr/publications/9789241511827/en/>

<sup>32</sup>EMI. [https://emilms.fema.gov/is\\_0230e/groups/15.html](https://emilms.fema.gov/is_0230e/groups/15.html)

A common, efficient, coordinated multisectoral approach, comprising all-hazard and hazard-specific measures, is needed to ensure preparedness for all types of emergencies. This approach will be built upon the set of principles adopted from WHO (2017).

It would be also crucial that the proposed concept of risk, as used in disaster research and evaluation, include a cascade (series) of risks and are part of a continuum of risks that progress from a hazard to a disaster (Figure 2). This continuum of risks (the Risk Cascade) is in agreement with the risk-reduction materials published by the Health Actions in Crisis Department of the WHO, the Global Health Cluster of the WHO, the United Nations (UN) Office for the Coordination of Humanitarian Affairs (OCHA), and the UN International Strategy for Disaster Reduction (UNISDR), and was highlighted during the 2013 Global Platform for Disaster Risk Reduction and 2015 Sendai Framework for Disaster Reduction 2015-2030.

**Figure 2: Conceptual Framework with Responses, Capacities, and Resilience<sup>33</sup>**



*Birnbaum © 2015 Prehospital and Disaster Medicine*

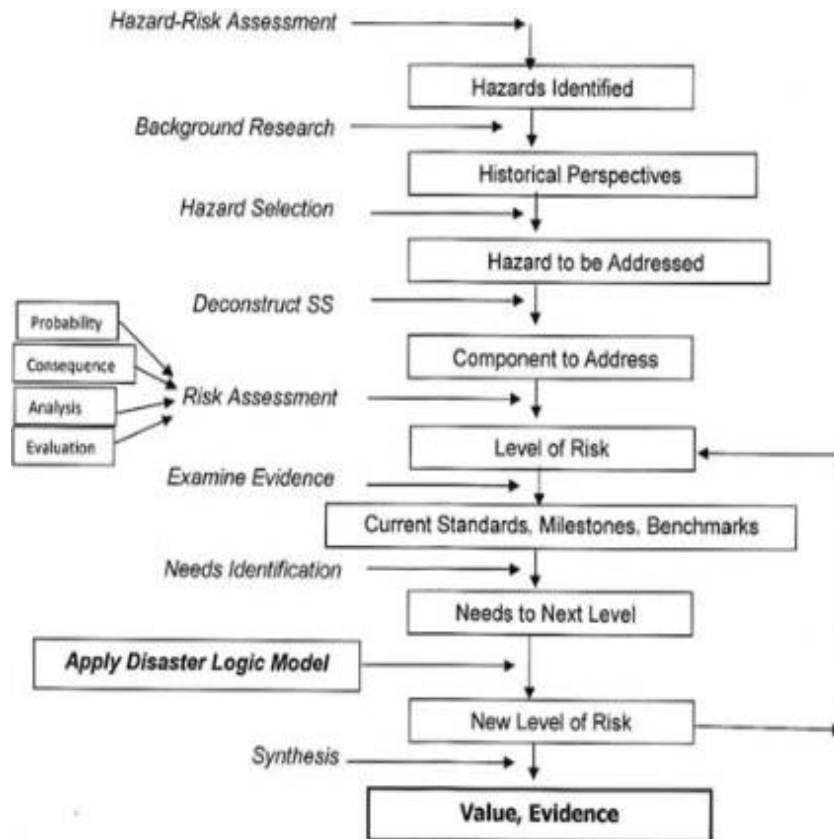
The Risk-Reduction Framework outlines the steps/benchmarks involved in the design and implementation of all risk-reducing measures. The Risk-Reduction Framework is based on the Disaster Logic Model and describes the sequence of steps involved in the process of undertaking measures to decrease the likelihood of a hazard manifesting as an event, or to increase a community's resilience to an event related to a hazard. The structure of the proposed Risk-Reduction Framework provides an implementation process as well as an evaluation tool for risk-reducing interventions.

Figure 3 incorporates the processes required to move sequentially from one stage of the Risk-Reduction Framework to the next; these processes have been appended to the Framework. Increased resilience should decrease the risk that an event related to a specific hazard will result in a disaster in terms of both the probabilities of occurrence and consequences. Capacity-building interventions are designed to decrease the risk (likelihood and impact) of the consequences that will result from an event.

<sup>33</sup> Birnbaum ML, Daily EK, O'Rourke AP, Loretto A (2016). Research and evaluations of the health aspects of disasters, part IX: Risk-Reduction Framework. *Prehosp Disaster Med.* 31(3) : 309-325.



**Figure 3: The Risk-Reduction Framework**



*Birnbaum © 2016 Prehospital and Disaster Medicine*

## 2. Role of the Coordination unit Secretariat

Ideally, the coordination unit secretariat will be embedded in OCHA and more specifically within UN Disaster Assessment and Coordination<sup>34</sup> (UNDAC). Taking into consideration all the above, the Secretariat in collaboration with Senior Management, UN Top management at Country Offices /Missions, UNDAC, UNDSS, IFRC, International NGOs will oversee the following tasks:

- a. Participate actively in building a Comprehensive framework including Organization's Preparedness Goal, Organization's Preparedness System, Community Initiative, and Annual Preparedness Report (Example is provided - inspired by the USA approach - [Annex 1 – General Context](#)) using benchmarks (ASIS International Organization Resilience Standard, British Standards Institution, National Fire Protection Association) with the ultimate objective to build an Integrated Management System and sustain capabilities by:
  - Contributing to the achievement of the Preparedness Goal by assessing and preparing for the most relevant and urgent risks,
  - Establishing an emergency management program based on the emergency management principles,
  - Using the relevant guidance to build capabilities.
- b. Support duty stations/Senior Management Teams (SMTs) and first responders to ensure a cost-effective and efficient coordinated teamwork to build, sustain, and improve the organization's capability to prepare for, protect against, respond to, recover from, and mitigate all hazards. This leadership and support role is expected to be in a risk-based, comprehensive emergency management system of preparedness that includes prevention, protection, response, recovery and mitigation.
- c. Support duty stations/SMTs to put in place adapted Emergency management program:
  - Develops and implements programs and capabilities aimed at reducing the impact of incidents,

<sup>34</sup> UNDAC - <https://www.unocha.org/our-work/coordination/un-disaster-assessment-and-coordination-undac>

- Identifies potential threats and hazards and threats and assesses the risk posed by them. The methodology used by NERAG<sup>35</sup> – Australia is interesting,
- Plans for those risks that cannot be eliminated,
- Prescribes the actions required to deal with the consequences of actual events and to recover from those events.

In this context, the expected emergency management actions should occur as:

- Pre-incident activities, such as facilitation of information sharing, threats & hazards identification, planning, training, and readiness exercises,
- Incident activities that include lifesaving missions,
- Post-incident activities that help affected people & Duty Stations recover and rebuild for a safer future.

**Annex 2** details the Preparedness concept.

- d. Coordinate and proactively lead the working group in charge to provide a high-level, strategic, unifying framework that outlines what is needed for emergency preparedness.

This expected framework will be built on previous efforts, capitalizes on current opportunities, and gives direction for stronger investment in emergency preparedness across relevant sectors and at all levels. It will also respond to a number of post-event reviews that have concluded that many duty stations are inadequately prepared for different types of emergencies, and which have recommended strengthening emergency preparedness.

The main objectives of this framework should be:

- To strengthen emergency preparedness in order to ensure a timely, efficient and effective response to events including: emergencies caused by natural, technological and societal hazards that can have a significant impact on staff members' health and can jeopardize delivering assigned mandates; as well as other types of emergencies as local/national outbreaks of infectious diseases that have the potential to cross borders; and epidemics and pandemics.
  - To advocate for prioritizing financial and resources for the UN system and country teams emergency preparedness, and mobilizing increased internal/domestic and Member States investment in this area.
- e. Apply and follow the common elements for strengthening preparedness, and information on their application at all levels:
    - *Governance*
      - Rules, Regulations and policies that integrate emergency preparedness
      - Plans for emergency preparedness, response and recovery
      - Coordination mechanisms
    - *Capacities*
      - Assessments of risks and capacities to determine priorities for emergency preparedness
      - Surveillance and early warning, information management
      - Access to diagnostic services during emergencies
      - Basic and safe health and emergency services
      - Risk communications
      - Research development and evaluations to inform and accelerate emergency preparedness
    - *Resources*
      - Financial resources for emergency preparedness and contingency funding for response
      - Logistics mechanisms and essential supplies for health
      - Dedicated, trained and equipped human resources for emergencies

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<sup>35</sup> Australian Institute for Disaster Resilience (2015). Australian Emergency Management Handbook Series. National Emergency Risk Assessment Guidelines – Handbook 10. Commonwealth of Australia 2015. 136 Pages.



f. Implement and follow a comprehensive and coherent plan for operationalizing emergency preparedness. The process for developing and implementing emergency preparedness should follow an iterative cycle ([Annex 2](#)). The proposed Key actions are as follows:

1. Coordinating
2. Financing
3. Assessing risk and capacity
4. Planning
5. Implementing
6. Evaluating and taking corrective action
7. Exercising

g. Design and implement a standardized format for evaluating and reporting results of interventions provided before, during or following disasters or other emergencies to facilitate systematic reviews and the development of standards and best practices.

In this context, the use of the Disaster Logic Model (DLM) provides the needed structure for the design, the evaluation and cataloguing any intervention or project ([Annex 3](#)). DLM is a useful tool to:

- Outlines a production function undertaken for transforming the current status into a new (and hopefully, better) state. It consists of a series of consecutive steps:
  1. Initial assessment of the current level of function of a Societal System(s);
  2. Identify of needs;
  3. Define goal(s);
  4. Select objective(s);
  5. Implement the intervention(s); and
- Determine the results and value of any intervention;
- Provide the systematic structure for analyzing the processes used in providing the intervention;
- Identify the effects (outputs), the outcomes (effects related to the objectives of the intervention), the impacts on the affected population or the population-at-risk, as well as the resources (human, materials, financial, environmental, opportunity, political costs) consumed by the transformation process;
- Determine the efficacy, efficiency, cost-benefit, cost-effectiveness, needs-effectiveness in achieving the objectives and compare those results with those from other interventions provided all providers;
- Provide a standardized format to facilitate comparisons and synthesis to develop standards and best practices for a given setting; and
- Provide the information required for accountability.

A repository of intervention studies using a uniform structure will contribute to facilitate the development of best practices that are essential to the design and implementation of capacity building interventions.

h. Implement and develop local competencies at duty stations to conduct Emergency-related Risk Assessment (ERA) ([Annex 3](#)). The approach should consist on a three stages assessment process that are closely connected through feedback loops and have some flexibility in sequencing and timing:

- Stage 1: Preparing and scoping – This stage considers what needs to be done before embarking on an ERA process, ensuring that outputs are fit for purpose. Five elements are introduced under this stage.
- Stage 2: conducting risk analysis – This stage is analytical risk analysis performed by a technical team, based on the terms of reference. It covers three elements.
- Stage 3: using the results for Emergency-related risk management and development decisions.

The risk assessment (RA) process flow should be complementary of the existing systems in the UN (DS-HRA, OSH RA, SRM, Clinical Risk Management ...etc.) and based on international standards on Risk Management (ISO 31000: 2018) and ERM. The components of the RA are summarized as follows:

- Establishing the context

- Risk Identification
- Risk Analysis
- Risk Evaluation

i. Select and regularly update the list of references, specialized websites and Scientific Societies to obtain accurate information about Emergency- Related hazards and up-to-date taxonomy:

- Emergencies due to natural hazards
  - Biological hazards
  - Emergencies due to hydro-meteorological and geophysical hazards
- Emergencies due to human-induced hazards
  - Emergencies due to technological hazards
  - Emergencies due to societal hazards

More detailed taxonomies and classification of Disaster's hazards (CRED, UNISDR, and NatCatService-Munich RE ...etc) need also to be consulted ([Annex 4](#)).

j. Conduct Rapid needs assessment in the immediate aftermath of Disaster: be trained, ensure capacity building locally and perform in collaboration with UNDAC and specialized Agencies, as part of the first response tasks, a situation assessment. The DO in collaboration with Resident Representatives are responsible for emergency response and for continued assessment of their ability to protect their staff members and the property. To fulfill this responsibility, after receiving an official request from the DO, responders and UN officials in collaboration with UNDAC, UNMERT, Specialized Agencies, UNDSS, local authorities and NGOs must conduct an immediate rapid assessment of the local situation. This ability to perform a rapid assessment within the first few hours after an event occurrence is crucial to providing an adequate response for life-threatening situations and imminent hazards. Coordinated and timely assessments enable the CO and DO in collaboration with UNDAC, UNMERT, UNDSS, UNMD to:

- Prioritize response activities.
- Allocate scarce resources.
- Request additional assistance from mutual aid partners, as well as the local authorities/Neighboring COs or UN Missions, UNHQ ... etc, quickly and accurately.

k. Implement and Participate in training local emergency coordinators, selected by the SMT/DO, who will have the responsibility for coordinating emergency management programs and activities ([Annex 4](#)).

l. Update the existing Emergency Operations Plan (EOP), and align them with international benchmarks:

Planning is a key component of the preparedness cycle, a process for managing risk. Plans are continuously evaluated and improved through a cycle of 6 steps to improve performance and reduce or eliminate identified risks:

- planning,
- organizing and equipping,
- training,
- exercising,
- evaluating, and
- taking corrective action.

The EOP is a key component of an emergency management program that establishes the overall authority, roles, and functions performed during incidents:

- Assigns responsibility to organizations and individuals,
- Sets forth lines of authority and organizational relationships and shows how all actions will be coordinated,
- Describes how people and property are protected,
- Identifies personnel, equipment, facilities, supplies, and other resources,

- Identifies steps to address mitigation concerns during response and recovery operations,
- Is flexible enough for use in all emergencies,
- Helps personnel and providers operate as a team in an emergency,

*“Preparedness and Planning”* - [Annex 5](#).

*“EOP Principles”* are detailed in [Annex 6](#).

*“Developing and maintaining EO Plans”* are detailed in [Annex 7](#).

m. Develop and implement a comprehensive standard and methodology for Acquisition and Management of Resources/Surge Capacity including all following:

1. **Staff:** Personnel,
2. **Stuff:** Supplies and Equipment,
3. **Structure:** Facilities,
4. **Systems:** Integrated management policies and procedures

The following guidance need to be in place and regularly tested and audited:

- Prior to an incident, resources need to be inventoried and categorized by kind and type, including their size, capacity, capability, skills, and other characteristics.
- Mutual aid partners exchange information about resource assets and needs. Resource readiness and credentialing are maintained through periodic training and exercises.
- When an incident occurs, standardized procedures should be used to:
  - Identify resource requirements,
  - Order and acquire resources, and
  - Mobilize resources.

The resource management process should be separated into two parts: resource management as an element of preparedness and resource management during an incident.

The preparedness activities (resource typing, credentialing, and inventorying) should be conducted on a continual basis to help ensure that resources are ready to be mobilized when called to an incident.

Resource management during an incident is a finite process, with a distinct beginning and ending specific to the needs of the particular incident.

- n. Conduct a comprehensive literature review and select the most adapted Triage system for ‘sorting’ large numbers of casualties and categorize patients into those that will need immediate attention and those that can wait. The chosen protocol should include an initial ‘primary triage’ that very quickly categorizes patients. There then follows a slightly more detailed assessment as part of the ‘secondary triage’ process. It is important to remember that these tools are designed for use with adults and that most disasters – at family duty stations - involve significant numbers of children. Using triage tools that have been developed for use with adults will lead to over-triaging of children and may unnecessarily draw resources away from where they are really needed. JumpSTART & the pediatric triage tape have been specifically designed for use with children and healthcare workers who respond to disasters should be trained in pediatric triage.
- o. Implement and ensure by regular audits that contracted Military Hospitals and UN Owned Hospitals Level 2 and 3 hospitals have developed – on their own - emergency plans that are regularly updated and exercised. In order to uniformize the approach, existing validated tools (KP, HERCL, HSI) should be made available for those hospitals and used for the Auditing process ([Annex X](#)).

Each facility should establish a planning committee with the appropriate authority to develop emergency plans. In addition, an emergency coordinator should be responsible for the documentation, distribution and exercising of plans. Other important components of healthcare facility planning include surge capacity, communication strategies, documentation, decontamination and personal protective equipment, pharmaceutical supplies and rostering issues.

It is important for hospital emergency plans to be exercised at least once per year. Exercise tools need to be procured and are appropriate for this purpose.

- p. Select and contract providers of MIMMS Certification and refreshers on time, as well as certification in “Disaster Life Support”. PHTLS Certification is not the best choice for this specific context and does not fit the requirements for Managing/Supporting Major Medical Incidents.
- q. Ensure and Support Medical personnel, at least 2 Medical Practitioners per “Region”, obtain MIMMS Instructor Certificate.
- r. Define and contribute actively in disseminating “*Crisis Standards of care*” for use in Disaster Situations. Professional care delivered in a catastrophic disaster need to be modified to address the demand of the situation, including focusing more intently on the needs of the entire affected staff. This requires response adaptations and to differentiate activities under 3 main components:
  - Conventional capacity,
  - Contingency capacity: adapting patient care spaces to provide functionally equivalent care,
  - Crisis Conditions Capacity: adapting to the level of care provided to the resources available when usual care is impossible.
- s. Prepare and implement a set of guiding principles for exercise programs and a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning ([Annex 8](#)).
  - Progressive Planning Approach employs the use of various exercise types aligned to a common set of program objectives within a cycle of exercises. The complexity of the exercises increases over time.
  - Informed by Risk: Identifying and assessing risks and associated impacts helps organizations identify priorities, objectives, and core capabilities to be evaluated through exercises.
  - Common Methodology for exercises that enables DS of divergent sizes, geographies, and capabilities to have a shared understanding of exercise program management, design and development, conduct, evaluation, and improvement planning; and fosters exercise-related interoperability and collaboration.

Through exercises, stakeholders will evaluate and validate plans and capabilities, and identify capability gaps and opportunities for improvement. They bring together and strengthen the interested parties in their efforts to prevent, protect against, mitigate, respond to, and recover from all types of hazards.
- t. Coordinate all emergency responses with UNDAC team and preferably be embedded with them. Responding entities cannot be intervening in a solitary and disorganized manner ignoring official UN OCHA mechanisms to manage and respond to emergencies. A draft MOU detailing a collaborative and integrated approach should urgently be prepared and submitted for approval by interested parties in OCHA/INSARAG and UN Secretariat.
- u. Explore the possibility and feasibility to create a “civilian-based disaster medical assistant teams - CDMAT” with clear terms of reference to complement and articulate with MERT and UNDAC. It can comprise medical professionals and allied staff and include doctors, nurses, paramedics, allied health and non-medical members such as logisticians. At short notice they can be deployed to the site of a disaster to provide a range of medical supports. These teams are expected to be self-sufficient for up to five days and undergone appropriate training. Depending on the emergency scenario CDMAT’s mission objectives may be
  - casualty clearing
  - emergency responder support
  - medical staging
  - field surgical intervention
  - humanitarian care
  - post-disaster public health interventions
  - primary care.

- v. Fast track medical clearances and post-mission debriefing for first responders and UNDAC team in collaboration respectively with OSH Section NY and OCHA Medical Director. The Actual medical clearances process is taking up to five (5) working days and represents a bottle neck for a rapid deployment of first responders:
- Determine that each participating organization completes activities to ensure their emergency responders and volunteers have the required personal information, health screening data, and training prior to their deployment.
  - Ensure the data from these activities is made available to the UN Secretariat Workforce planning Unit.
  - Facilitate the procurement of any missing/absent data by direct survey of participating responders.
  - Be certain the Incident Commander appoints a person in charge of collecting and analyzing the responder safety and health data.
  - Facilitate collaboration and sharing of data between Workforce planning Unit and other key components of the response team, such as Planning and Logistics, Security Officers and Safety Officers.
  - Administer out-processing assessment for all responders at completion of their duties for the event.
  - Ensure the OSH Unit will identify those responders or responder groups whose health would benefit from periodic tracking after the event, make recommendations regarding the most suitable method of tracking, and suggest an appropriate duration for health tracking.
  - Facilitate the compiling of an After-Action Report for UNMD review and should be made available to all responder organizations involved, so they can benefit from these insights.
- w. Take part to Office of the Military Adviser field visits/Planning and Advanced teams prior to and during initial phases of start-up/upgrading missions especially in Conflict /Hardship zones
- x. Prepare guidelines to support management of specific risk / CBRN incidents,
- y. Prepare and implement an effective Stakeholder Engagement strategy. The consequent template should outline options for scoping the plan as well as the respective proposed methods of outreach and involvement of various stakeholders throughout the planning process and engagement required at each level. The scope of the plan should be determined before launching the planning process.

### 3. Logistics and Administrative considerations:

#### Geographical location for the Secretariat:

	New York	Geneva	Entebbe	Brindisi
Post Adjustment	66.9%	70%	25.6%	29.7 %
Prons	Proximity with Senior management and decision-makers at UNS & NY Based AFPs- Availability of advanced training for UNMERT	Proximity with UNDAC team, IFRC, UNISDR – Available training platform. Deployment of UNMERT can be embedded within UNDAC deployment	Use of MONUSCO logistic – Available training platform – Proximity to conflict zones – Available transportation to main duty stations	Available platform training – Relative proximity to potential Catastrophe incident sites
Cons	Far from all potential Incident locations and stakeholders/partners High Post Adjustment	Far from decision-makers at UNS High Post adjustment	Far from all partners & without supervision	Far From all stake holders & partners

#### Staffing: Senior Medical Officer; Program Manager/P2 & Team Assistant/G6

	SMO – P5	Program Manager – P2	Team Assistant – G6
Disaster Medicine & Management	✓	+/-	
MIMMS	✓		
MIMMS Instructor Course	✓		
Risk Assessment /ERM	✓	+/-	
Strategic Project Management	✓		
Project Management		✓	
Audit	✓	✓	
Data Management		✓	✓
Health promotion / Risk perception		✓	
Multisectoral approach to health	✓	✓	
HR Skills		✓	✓
UMOJA: Procurement & Travel	+/-	✓	✓
OSH Standards	+/-	+/-	+/-
Exercises Design &Implementation & Evaluation	✓	✓	+/-

#### Training:

	SMO	Program Manager	Team Assistant
UNDAC training	✓	✓	✓
SSAFE training	✓	✓	✓
International intensive course in Humanitarian Law	✓	✓	✓
All-hazards Disaster Response	✓		
Mandatory UN Courses – 7 Courses	✓	✓	✓
Full scale exercise training - once a year - as trainees	✓	✓	+/-
Disaster Life Support	✓	+/-	+/-
NEBOSH Awards	✓	✓	✓

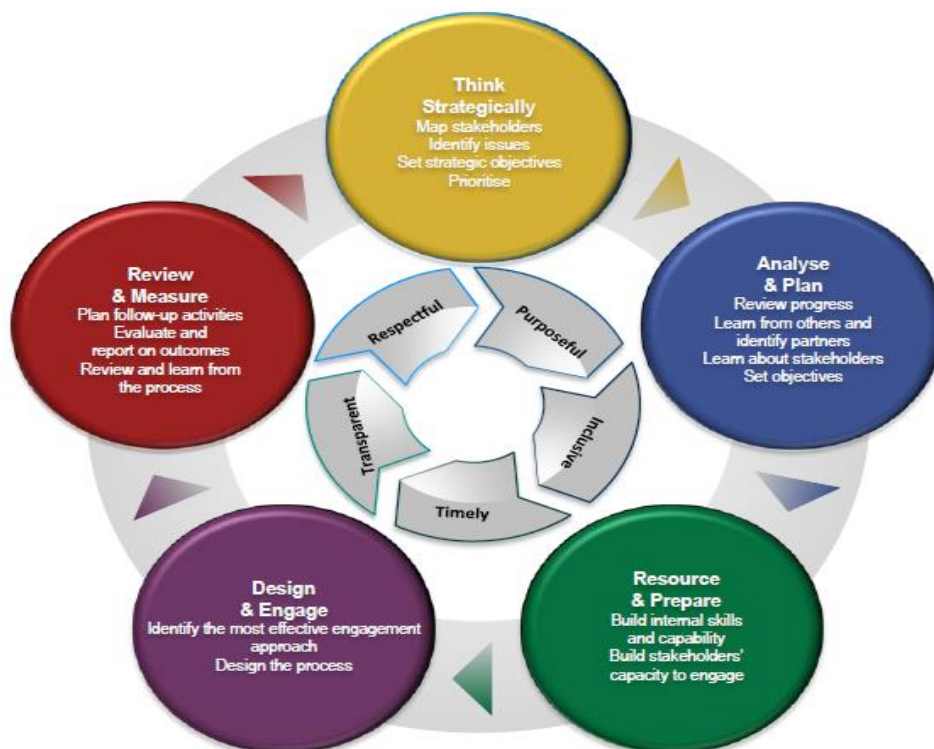
### 4. Stakeholders' engagement strategy and Analysis

Stakeholder engagement<sup>36</sup> is the process used by an organization to engage relevant stakeholders for a clear purpose to achieve agreed outcomes. It is recognized as a fundamental accountability mechanism, since it obliges an organization to involve stakeholders in identifying, understanding and responding to sustainability issues and concerns, and to report, explain and answer to stakeholders for decisions, actions and performance.

<sup>36</sup> AA1000 – Stakeholders Engagement Standard – Ver. 2015 – AccountAbility [www.accountability.org](http://www.accountability.org)



The five-step process is structured to support thorough planning, preparation, action and evaluation of every engagement activity. The process is a dynamic and ongoing cycle, which supports a comprehensive approach to engagement and will, over time, build an evidence-based platform for continuous improvement.



The outline of suggested ways in which a project manager can engage stakeholders according to each level of engagement is developed below with two examples. A detailed plan needs to be prepared ASAP.

### Stakeholder Analysis Matrix<sup>37</sup>

Name(s) of person(s) reporting: \_\_\_\_\_

Project: OSH

Stakeholder Name	Contact Person Phone, email, Address	How important is the stakeholder?	Level of Knowledge about the issue	Impact How much does the project impact them? Risks	Influence/Level of support How much influence do they have over the project	What is important to the stakeholder? Benefits	How could the stakeholder contribute to the project?	How could the stakeholder block the project?	Strategy for engaging the stakeholder (enhancing their support)
		Low, Med, High	1: Uninformed 2: Familiar 3: Expert	Low, Med, High including list of risks	1: Actively opposed 2: Somewhat opposed 3: Neutral/undecided 4: Somewhat supportive 5: Actively Supportive	List of benefits			
Entity 1									
Entity 2									

### Stakeholder power and impact of changes - Summary

High Power		
Low Power		
	Low Impact	High Impact / Stake-holding

<sup>37</sup> Adapted from: Krick et al. (2005) - The Stakeholder Engagement Manual. Volume 2: The Practitioner's Manual on Stakeholder Engagement. <http://www.managingforimpact.org/resource/stakeholder-engagement-manual-volume-2-practitioners-manual-stakeholder-engagement>

## Annex 1: General Context

### 1. Preparedness Goal

The Preparedness Goal presents an integrated, layered, and all-of-Organization approach to preparedness.

Successful achievement of this Goal will result in a secure and resilient Organization with the capabilities required across the whole UN system to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.

### 2. Preparedness Goal: Capabilities and Mission Areas

The emphasis of the Preparedness Goal is on building and sustaining core capabilities across five mission areas.



### 3. What Are Core Capabilities?

The core capabilities are:

Distinct critical elements necessary to achieve the Preparedness Goal.

Essential for the execution of each mission area: Prevention, Protection, Mitigation, Response & Recovery

### 4. Core Capabilities

4.1. Prevention Mission Area Core Capabilities

4.2. Protection Mission Area Core Capabilities

4.3. Mitigation Mission Area Core Capabilities

4.4. Response Mission Area Core Capabilities

4.5. Recovery Mission Area Core Capabilities

### 5. Mission Areas

Mission areas differ from phases of emergency management. Each area is comprised of the capabilities required for executing the mission or function at any time (before, during, or after an incident) and across all threats and hazards. **It is important to shift thinking to capabilities!**

5.1. **Prevention:** The capabilities necessary to avoid, prevent, or stop a threatened or actual act of **terrorism**.  
The term “prevention” refers to **preventing imminent threats**.

5.2. **Protection:** The capabilities necessary to secure the UN presence against acts of **terrorism and manmade or natural disasters**.

- 5.3. **Mitigation:** The capabilities necessary to **reduce loss of life and property by lessening the impact of disasters**.
- 5.4. **Response:** The capabilities necessary to **save lives, protect property and the environment, and meet basic human needs** after an incident has occurred.
- 5.5. **Recovery:** The capabilities necessary to assist duty stations affected by an incident to **recover effectively**.

## 6. Definitions

**Emergency preparedness:** the knowledge, capacities and organizational systems developed by governments, response and recovery organizations, communities and individuals effectively to anticipate, respond to, and recover from the impacts of likely, imminent, emerging, or current emergencies.

**An emergency:** an event or threat that produces or has the potential to produce a range of consequences that require urgent, coordinated action.

**A plan:** a document designed to identify, at various levels, responsibility for a range of activities aimed at meeting specific objectives and at implementing accompanying strategies and tactics.

**An emergency response plan (ERP):** a document describing how an agency or organization will manage its response to emergencies. An ERP describes the objectives, policies and concept of operations (CONOPS) for the response, as well as the structure, authorities and responsibilities to make that response systematic, coordinated and effective. For example: a national whole-of-government ERP can be a synthesis of ministry-specific ERPs, and can detail the resources, capacities, and capabilities that each ministry will employ in its response. A whole-of-society ERP also includes contributions from the private sector.

**Risk:** the combination of the probability of an event and its consequences. Risk results from interactions between natural and human-induced hazards, vulnerability, exposure, and capacities.

**Risk assessment:** the process of determining those risks to be prioritized for risk management by a combination of risk identification, risk analysis, and evaluation of risk level. A risk assessment includes a review of the technical characteristics of hazards, analysis of exposures and vulnerability, and evaluation of the effectiveness of existing coping capacities.

**Risk management:** coordinated activities to direct and control risk in order to minimize potential harm. These activities include risk assessments, implementing risk treatment or response measures, and evaluation, monitoring, and review.

**Disaster risk:** The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

*The definition of disaster risk reflects the concept of hazardous events and disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socioeconomic development, disaster risks can be assessed and mapped, in broad terms at least.*

*It is important to consider the social and economic contexts in which disaster risks occur and that people do not necessarily share the same perceptions of risk and their underlying risk factors.*

Acceptable risk, or tolerable risk, is therefore an important sub-term; the extent to which a disaster risk is deemed acceptable or tolerable depends on existing social, economic, political, cultural, technical and environmental conditions. In engineering terms, acceptable risk is also used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people,

property, services and systems to a chosen tolerated level, according to codes or “accepted practice” which are based on known probabilities of hazards and other factors.

Residual risk is the disaster risk that remains even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery, together with socioeconomic policies such as safety nets and risk transfer mechanisms, as part of a holistic approach.

National Disaster Risk: intensive and extensive Disaster Risks that either have a potential (cumulative) impact that is significant and relevant for the nation as a whole and/or require national DRM coordination.

Annotation: the boundaries of National Disaster Risk depend on the purpose and scoping of a NDRA process. This has to be defined in each country, taking into account existing governance and DRM policies. National Disaster Risks at least include all risks that cannot be sufficiently managed at sub-national level.

Extensive Disaster Risk: the risk associated with low-severity, high-frequency events, mainly but not exclusively associated with highly localized hazards.

Intensive Disaster Risk: the risk associated with high-severity, mid to low-frequency events, mainly associated with major hazards.

**Disaster risk assessment:** A qualitative or quantitative approach to determine the nature and extent of disaster risk by analyzing potential hazards and evaluating existing conditions of exposure and vulnerability that together could harm people, property, services, livelihoods and the environment on which they depend. Disaster risk assessments include: the identification of hazards; a review of the technical characteristics of hazards such as their location, intensity, frequency and probability; the analysis of exposure and vulnerability, including the physical, social, health, environmental and economic dimensions; and the evaluation of the effectiveness of prevailing and alternative coping capacities with respect to likely risk scenarios.

**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. Hazards may be natural, anthropogenic or socio-natural in origin. Natural hazards are predominantly associated with natural processes and phenomena. Anthropogenic hazards, or human-induced hazards, are induced entirely or predominantly by human activities and choices. This term does not include the occurrence or risk of armed conflicts and other situations of social instability or tension which are subject to international humanitarian law and national legislation. Several hazards are socio-natural, in that they are associated with a combination of natural and anthropogenic factors, including environmental degradation and climate change.

*Hazards may be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity or magnitude, frequency and probability. Biological hazards are also defined by their infectiousness or toxicity, or other characteristics of the pathogen such as dose-response, incubation period, case fatality rate and estimation of the pathogen for transmission.*

Multi-hazard means (1) the selection of multiple major hazards that the country faces, and (2) the specific contexts where hazardous events may occur simultaneously, in a cascading manner or cumulatively over time, and taking into account the potential interrelated effects.

Hazards include (as mentioned in the Sendai Framework for Disaster Risk Reduction 2015-2030, and listed in alphabetical order) biological, environmental, geological, hydro-meteorological and technological processes and phenomena.

**Exposure:** The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas.

*Measures of exposure can include the number of people or types of assets in an area. These can be combined with the specific vulnerability and capacity of the exposed elements to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest.*

**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

**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. The capacity to cope 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.

**Underlying disaster risk drivers:** Processes or conditions, often development-related, that influence the level of disaster risk by increasing levels of exposure and vulnerability or reducing capacity.

Underlying disaster risk drivers - also referred to as underlying disaster risk factors - include poverty and inequality, climate change and variability, unplanned and rapid urbanization and the lack of disaster risk considerations in land management and environmental and natural resource management, as well as compounding factors such as demographic change, non-disaster risk-informed policies, the lack of regulations and incentives for private disaster risk reduction investment, complex supply chains, the limited availability of technology, unsustainable uses of natural resources, declining ecosystems, pandemics and epidemics.

**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.

Hazard, exposure, vulnerabilities and capacities are dynamic and constantly changing as a result of changes, for instance, in land use and land cover, rapidly growing urbanization, construction practice and regulations and technological innovations. Other processes further impact the dynamics of hazard, exposure, vulnerability, capacity and their interactions, including underlying root causes such as climate change, population growth or changing demographic structures, and changing levels of inequality gaps and poverty.

Therefore, understanding (through NDRA) and addressing (through disaster risk management) the root causes of all dimensions of risk is an essential consideration.

## Annex 2: Emergency Preparedness

Preparedness includes a range of deliberate, critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, mitigate, respond to, and recover from incidents.

Preparedness is a continuous process involving efforts at all levels of the Organization and between field duty stations, UNDAC, UNDSS, IFRC, Specialized Agencies and NGOs/INGOs to identify threats, determine vulnerabilities, determine impacts on capabilities, and identify required resources.

Preparedness includes plans or other preparations made to save lives and facilitate response and recovery operations.

### Emergency Management Preparedness Mission Areas

The Preparedness Goal should identify mission areas within which all partners must build and sustain capabilities. In this context, the collaboration between all stakeholders should aim that emergency management supports or executes the following mission areas:

- **Prevention:** The capabilities necessary to avoid, prevent, or stop a threatened or actual act of terrorism. Here the term “prevention” refers to preventing imminent threats.
- **Protection:** The capabilities necessary to secure the UN System against acts of terrorism and human-caused or natural disasters.
- **Mitigation:** The capabilities necessary to reduce loss of life and property by lessening the impact of disasters.
- **Response:** The capabilities necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred.
- **Recovery:** The capabilities necessary to assist communities affected by an incident to recover effectively.

#### Prevention and Protection

Some of the capabilities necessary to support the Protection and Prevention mission areas include:

- Identifying threats and hazards.
- Sharing information with and between stakeholders including partners.
- Applying physical, technological, and cyber measures to limit access and verify identity of volunteers and surge team-members.

#### Mitigation

Mitigation activities take place prior to, during, and after an incident. Mitigation capabilities are those necessary to reduce or eliminate long-term risk to persons or property, or lessen the actual or potential effects or consequences of an incident. These include:

- Understanding, recognizing, communicating, planning for, and addressing risks,
- Building resilient systems, communities, and infrastructure to reduce vulnerability to incidents,
- Identifying, analyzing, and planning for area threats and hazards.

To be successful, mitigation measures must be developed into an overall mitigation strategy that considers ways to reduce consequences together with the overall risk from specific threats and other community goals.

A sound mitigation strategy is based on the following factors:

- Mitigation measures are intended to protect existing vulnerabilities from becoming more significant based on new development or other changes within the community (e.g., road construction, zoning or building code changes).



- Property protection measures are used to modify buildings or their surroundings to reduce the risk of damage from a known hazard. Property protection measures directly protect people and property at risk. They may be simple and relatively low cost or they may be more elaborate and expensive (e.g., building earthquake-resistant structures in earthquake zones).
- Natural resource protection measures are used to reduce the consequences of a known hazard and to improve the overall quality of the environment.
- Emergency protective measures: to protect people before and after an event occurs. Emergency protective measures protect people before and after an event occurs and may include:
  - Installing and maintaining warning systems.
  - Ensuring the protection of emergency responders.
  - Protective measures for critical facilities.
  - Maintenance of the public's health and safety.
- To be effective, emergency protective measures should be built into the emergency planning process, exercised, and revised to incorporate lessons learned from both exercises and actual incidents

The mitigation strategy is based on the Organization's Threat and Hazard Identification and Risk Assessment.

### Response

Response begins when an incident is imminent or immediately after an event occurs, and encompasses the activities that address the short-term, direct effects of an incident. Response capabilities focus on saving lives, protecting property and the environment, and meeting basic human needs. Activities may include:

- Providing transportation for response priorities, including evacuation of people and animals, and delivery of response resources.
- Providing fatality management services.
- Minimizing health and safety threats.
- Providing life-sustaining services with a focus on hydration, feeding, shelter, and reunifying families.
- Delivering search and rescue services.
- Ensuring a safe and secure environment for affected communities.
- Ensuring timely communications.
- Providing essential services including emergency power, fuel, access to community staples, and fire and first response services.
- Providing lifesaving and medical treatment.

### Response: Obtaining Information

An important part of rapid assessment is obtaining accurate information quickly. Critical information, also called essential elements of information (EEI), includes information about:

5. Gather information on **lifesaving** needs including evacuation and search and rescue.
6. Gather information on **critical infrastructure** including determining the status of transportation, utilities, communication systems, and fuel and water supplies.
7. Gather information on **critical facilities** including determining the status of police and fire stations, medical providers, water and sewage treatment facilities, and media outlets.
8. Gather information on the **risk of damage** to the community (e.g., dams and levees, facilities producing or storing hazardous materials) from imminent hazards.
9. Gather information on the number of **individuals who have been displaced** because of the event and the estimated extent of damage to their dwellings.

### Anticipating Cascading Events

Information must also be gathered on **cascading events**, which are events that occur as a direct or indirect result of an initial event. For example, if a flash flood disrupts electricity to an area and, as a result of the electrical failure, a serious traffic accident involving a hazardous materials spill occurs, the traffic accident is a cascading event. If, as a result of the hazardous materials spill, a neighborhood must be evacuated and a local stream is contaminated, these are also cascading events. Taken together, the effect of cascading events can be crippling to a community.

Good planning, training, and exercising before an event occurs can help reduce cascading events and their effects. Maintaining the discipline to follow the plan during response operations also reduces the effects of cascading events.

## **Recovery**

The goal of recovery is to return the Organization's systems and activities to normal. Recovery efforts start once an incident has occurred, and some recovery activities may be concurrent with response efforts. The ability to accelerate the recovery process begins with pre-disaster preparedness including planning and mitigation.

Recovery is more than the restoration of physical structures. It also includes:

- Returning business activities to a healthy state.
- Restoring and improving health and social services networks.
- Implementing offices /housing solutions.
- Stabilizing critical infrastructure functions.

## **Principles of Emergency Preparedness (Ref: adapted from WHO)**

- Safeguarding, maintaining and restoring the health and wellbeing of field staff members. These are the highest priorities for emergency preparedness. Improving the state of individual, Missions AOR, and DS health security in every Country Office, and particularly in higher-risk, low-capacity countries, contributes to global health security and helps raise the level of health security for all.
- Staff-members assigned to field duty stations are critical to effective emergency management. Those staff members are supposed to be the first responders – and the first victims – of any emergency and, as such, essential members of the preparedness process. They should be represented, through the Staff Union, in all activities around developing and implementing plans for emergency preparedness.
- Preparedness requires sustained UN Top Management commitment, partnerships, and funding. Top & Senior Management leadership and attention, combined with strong community Country Office ownership, should be accorded to preparedness in a sustained manner, just like funding. Emergency preparedness is a shared responsibility that requires coordination between communities and national and international actors. It also necessitates effective partnerships between diverse stakeholders including public and private actors, civil society/NGOs, donors, INGOs, technical & specialized agencies and operational entities.
- Achieving emergency preparedness has a cost, but this is an investment in health, safety and security. Sustained funding should be aligned with costed, prioritized preparedness measures based on risk and capacity assessments.
- Health systems and emergency preparedness reinforce one another, and along with other systems contribute to the resilience at duty stations and Missions' AOR. A focus on systems is extremely important to emergency preparedness, because it is not only specific activities and actors that are needed to build stronger systems, but also the right relationships between them. Strong human/Public Health and animal preventive health and other societal systems are the foundations of emergency preparedness. Conversely, emergency preparedness builds the resilience of these systems.

- Emergency preparedness should be addressed with an all-hazards approach. Many elements of emergency preparedness are common to all hazards, and plans for emergency preparedness should be designed to incorporate them. There is also a need for hazard-specific emergency preparedness measures based on risk assessments, and these should build on and supplement all-hazard plans as appropriate.
- A risk management approach underpins the assessment, planning and implementation of emergency management actions including prevention and mitigation of risks, preparedness activities, coordinated response, and recovery and reconstruction. Emergency risk management should continue to emphasize prevention measures to avoid hazards and reduce vulnerability.
- A whole-of-system approach is critical for emergency preparedness. Addressing the health dimensions of emergency preparedness requires the health system to interact with other local authorities at all levels of their national system; the private sector; and civil society, including non-governmental and community organizations.

### Operationalizing emergency preparedness

The process for developing and implementing emergency preparedness follows an iterative cycle. Key actions are as follows:



- **Coordinating:** development and implementation of emergency preparedness requires robust coordination mechanisms that include multisectoral and partner participation.

Coordination among all partners is essential for every aspect of the process, and enables all stakeholders including community, local authorities and international actors to work toward common objectives under a joint planning process (see below).

- **Financing:** All steps of emergency preparedness planning should take account of available financial and in-kind resources from local, national or international sources. Local and international investments should be aligned with the priorities articulated in the Duty Station action plan. Where multiple action plans exist, they should be brought together before costing and financing occurs to ensure that the DS' priorities are reflected and funded. Country offices must ensure that health financing structures for strengthening emergency preparedness are included in a budget for health security or emergency risk management, which in turn should not only be part of the health budget, but also part of multisectoral budgets for emergency preparedness. Country Offices must include contingency funding mechanisms for rapid access during emergencies. In most higher-risk low-capacity countries, these processes will require considerable financial support.

- **Assessing risk and capacity:** The development of an emergency preparedness program and associated plans should be based on all-hazards assessments of risk, and of the available capacity to manage the priority risks. A standardized approach to all types of assessment is required so that they may be applied in a comparable, reproducible and defensible manner to inform emergency preparedness plans. A range of generic, multi-hazard or risk-specific frameworks and tools enables Duty Stations to assess emergency preparedness

capacities, and provides the information needed to institute targeted measures to strengthen preparedness and response systems in a proactive, evidence-based way.

- **Planning:** Country Offices and Divisions will use different frameworks and tools to develop preparedness and emergency response plans. The resulting plans may vary from one context to another because of the different risks and capacities to be found in communities and countries, and because different tools have been used. It is crucial that emergency preparedness plans between and within sectors and levels are aligned and do not generate unnecessary fragmentation or duplication. The planning process should involve broad stakeholder consultation and must be aimed at developing consensus and agreement not only on content, but also with regard to roles in implementation and financing.

- **Implementing:** Successfully implementing a systemic action plan requires a number of things. A coordination mechanism, involving stakeholders with responsibilities identified in the systemic action plan, should oversee and monitor progress. The participation of stakeholders in planning is essential to ensure commitment to, and ownership of, emergency preparedness measures. The priorities for strengthening emergency preparedness should be described clearly in the action plan; responsibilities and accountabilities should be clearly identified; and sufficient resources should be available to put actions into practice over the duration of the plan. Another important factor is the need to limit the time lag between development and implementation of the plan, to maintain momentum and commitment to emergency preparedness.

- **Evaluating and taking corrective action:** Emergency preparedness is a dynamic process. The implementation of emergency preparedness plans should be monitored and evaluated in line with pre-defined indicators and standardized tools and processes, and should be reported accordingly. Reviews should be conducted at pre-agreed times by the coordinating body, or by an independent body convened for the purpose. Where there are changes in risk priorities or in the availability of capacities and resources, or where post-emergency or post-exercise reviews have identified areas for improvement, corrective action should be applied to the assessment, planning and prioritization of emergency preparedness activities.

- **Exercising:** Exercises provide evidence-based assessments for the monitoring and strengthening of emergency preparedness. As training tools, exercises are useful to help build individual competencies, allowing participants to learn and practice their roles in emergencies.

As quality assurance tools, exercises can test and evaluate emergency policies, plans and procedures at organization- or system-wide levels. After exercises have been conducted, action should be taken to institute the recommendations for strengthening emergency preparedness.

### Annex 3: The Disaster Logic Model

Disaster-related interventions seek to change the current level(s) of function(s) of one or more Societal Systems (or components) affected by, or at-risk for, a catastrophic event. Thus, the effects (outputs) from the transformation process should consist of a positive change(s) in the functional status (levels of function(s)) of the community or a System within a community (may prevent/minimize further deterioration on level of function). Therefore, for the purposes of studying disaster-related interventions, the logic model has been revised to include relating the goals and objectives of the intervention with the identified need(s), the effects of the intervention with the goal and objectives, the outcomes with the objectives of the intervention, and the impacts with the overarching goal of the interventions. Separating the effects (outputs), outcomes, and the impacts is essential for the useful evaluation of a disaster intervention. This version of the logic model is referred to as the “Disaster Logic Model” (DLM; Figure VI-3).

The DLM outlines a production function designed to transform the current status into a new (and hopefully, better) state. In order to achieve the new state, an intervention is implemented and resources are consumed. The resources consumed are the costs (human, equipment, supplies, environmental, economic, political, and/or opportunity). The outputs are the products (effects) of the transformation process (the intervention provided).

The DLM consists of a series of consecutive steps (stages) beginning with the initial assessments of current levels of functioning of a Societal System and/or its components through the determination of the value of a specific intervention to the affected community or a community-at-risk. The outputs may have various effects on the status of the populations, infrastructure, the environment, and/or the economy for which the intervention/ response was initiated—there may be more than one effect produced by the intervention. These effects generate the impacts.

The impacts are the “so what” of the intervention (ie, what difference(s) did the intervention make for/on the community affected or at-risk?). The impact(s) produced by the intervention may be positive or negative. Positive impacts improve the pre-intervention status and are called “benefits”. Other effects produced by the intervention may have further compromised the pre-intervention status (negative impact). The negative impacts may have greater significance than the positive impacts. The DLM can be applied to evaluating the results of any intervention, regardless of the setting or phase in which it was provided.

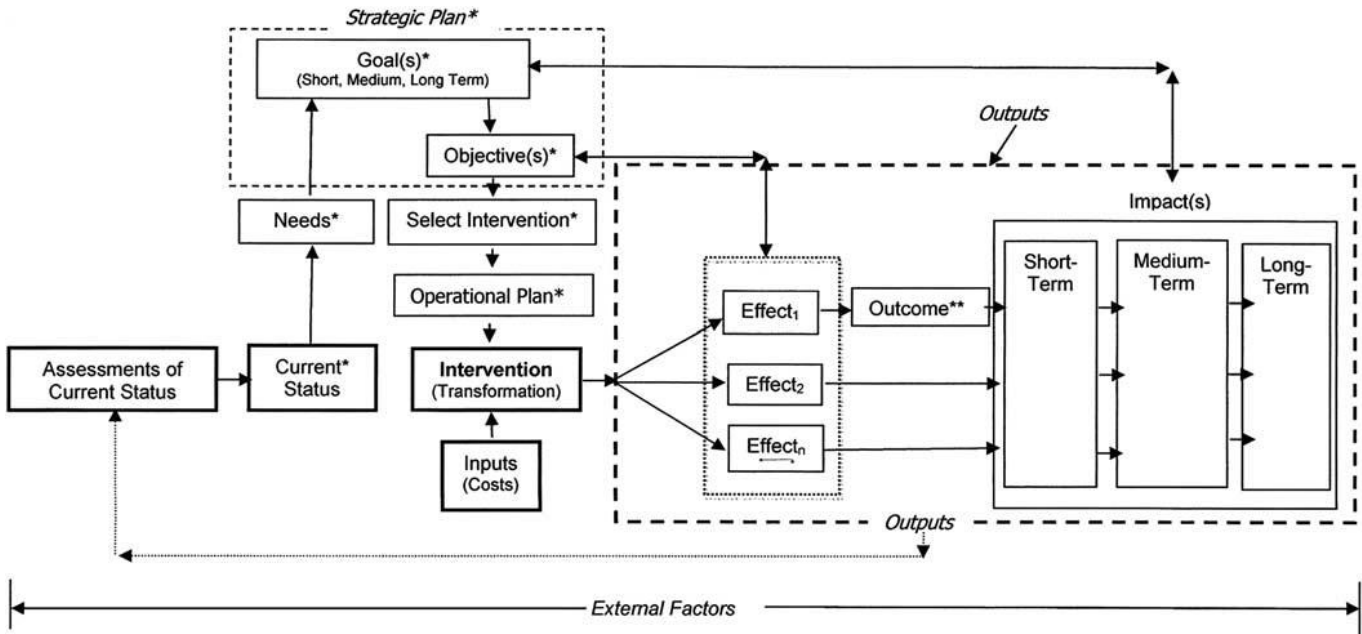
All responses (interventions) must be directed towards meeting a defined need or set of needs of the person, System, or community affected, or likely to be affected, by an event. Needs are the difference(s) between the available goods, services, and other resources required to sustain or achieve a given level of function, and those goods and services needed to meet that requirement. The identified need(s) is (are) synthesized into a Strategic Plan that defines the goal(s) that should be accomplished in order to meet the defined need(s). Interventions are selected that are likely to contribute to achieving the defined goal. The objective(s) of the interventions selected should move, or contribute to moving, the status of the affected community or community-at-risk towards the defined goal. The outcome(s) of an intervention is the achievement of the level of function stated in the objective(s) of the intervention.

For example, if assessments indicate that 3,000 internally displaced persons in a camp are at a high risk for an outbreak of cholera, the **goal** would be to prevent the development of a cholera outbreak/epidemic in the camp. An **intervention** would be selected that has as its **objective** to immunize 3,000 camp residents. If 3,000 residents subsequently received cholera immunization, the objective of the intervention was achieved (ie, the outcome met the objective for which the intervention was designed). However, if, despite the successful completion of the immunization campaign, an outbreak of cholera occurred within the camp, the goal of preventing a cholera outbreak/ epidemic was not achieved. And, if the immunization process resulted in any deaths, the status of the population actually deteriorated (had a negative impact) although the objective of

the intervention was achieved. The other effects of the immunization process may have outweighed the probable benefits (positive impact) of the immunization intervention. Thus, merely achieving the desired outcome of the intervention does not reveal the impact of the intervention.

Assumptions are the beliefs about the program [project], people involved, and how the program [project] will operate. The synthesis of assessments and other information is an integrative process and the results include assumptions based on the synthesis of information available and used. Assumptions are a part of all logic models. Documentation of assumptions is an important aspect of the use of logic models.

Use of the DLM provides the structure needed for identifying the value of any disaster intervention or project. It can be used to identify the effects (outputs); the outcome(s) (effects related to the objective(s) of the intervention); the impacts on the affected population or the population-at-risk; as well as the resources (human, materials, financial, environmental, opportunity, and political costs) consumed by the transformation process. The efficacy, efficiency, cost-benefit, and cost-effectiveness in achieving the objectives can be derived from the assessment data collected and can be compared with those from other interventions by the same or different providers in similar settings. The DLM also provides the structure for the steps outlined in the Relief/Recovery and Risk-Reduction Frameworks. Each of the stages in the DLM is described briefly below.



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**Figure VI-3. The Disaster Logic Model (DLM).**

A logic model modified for use in evaluating interventions provided before, during, or after a disaster. This DLM relates the outcome to the objectives and the impacts to the overarching goal. The effects can be tempered by factors that are external to the transformation process.

*\*Requires assumptions. \*\*May be achievement of a number of actions in which case it is not an effect of the intervention.*



## Annex 3: Emergency-related Risk Assessment

The purpose is to provide a contextualized, emergency-related risk assessment method consistent with the ISO 31000:2009 Risk management - principles and guidelines and consequently to:

- enable consistent and rigorous emergency-related risk assessments (ERA),
- increase the quality and comparability of risk assessments,
- improve the system evidence based on emergency-related risks.

The outputs from risk assessments are intended to improve decision-making when allocating scarce resources for risk treatment and emergency prevention and preparedness measures.

### Scope

*ERA* provides a method to assess emergency-related risks from all hazards and is principally concerned with enabling the consistent application of emergency-related risk assessment practices across the UN System. Although *ERA* focuses primarily on risk assessment rather than the broader practice of risk management, its outputs are intended to help prioritize risk mitigation activities.

*ERA* is not intended to address all aspects of the risk management framework or processes outlined in ISO 31000:2009. However, because *ERA* focuses on the assessment of risks relating to emergency events, it directs the management of emergency-related risks in line with international standards for risk management.

*ERA*'s aim is to provide a risk assessment method that:

- can be used for assessing emergency-related risks at a range of scales,
- examines historical and/or modeled (synthetic/scenario) emergency events across a range of likelihood and consequence levels,
- identifies current risk levels under existing controls and can be used to assess effectiveness of proposed treatments (which may include new controls or control improvements).
- allows the use of various forms of evidence to inform the understanding and assessment of risks, including quantitative data, expert evidence and stakeholder consultation,
- allows risk evaluation at varying levels of confidence,
- provides outputs that allow for risks to be prioritized, and suggests either treatment planning, further investigation, or ongoing monitoring and review for each risk.

*ERA* is not intended to support or replace operational emergency-related risk assessment tools. That is, it is not intended that the *ERA* method be used to assess risk to emergency personnel who are, for example, undertaking emergency response duties.

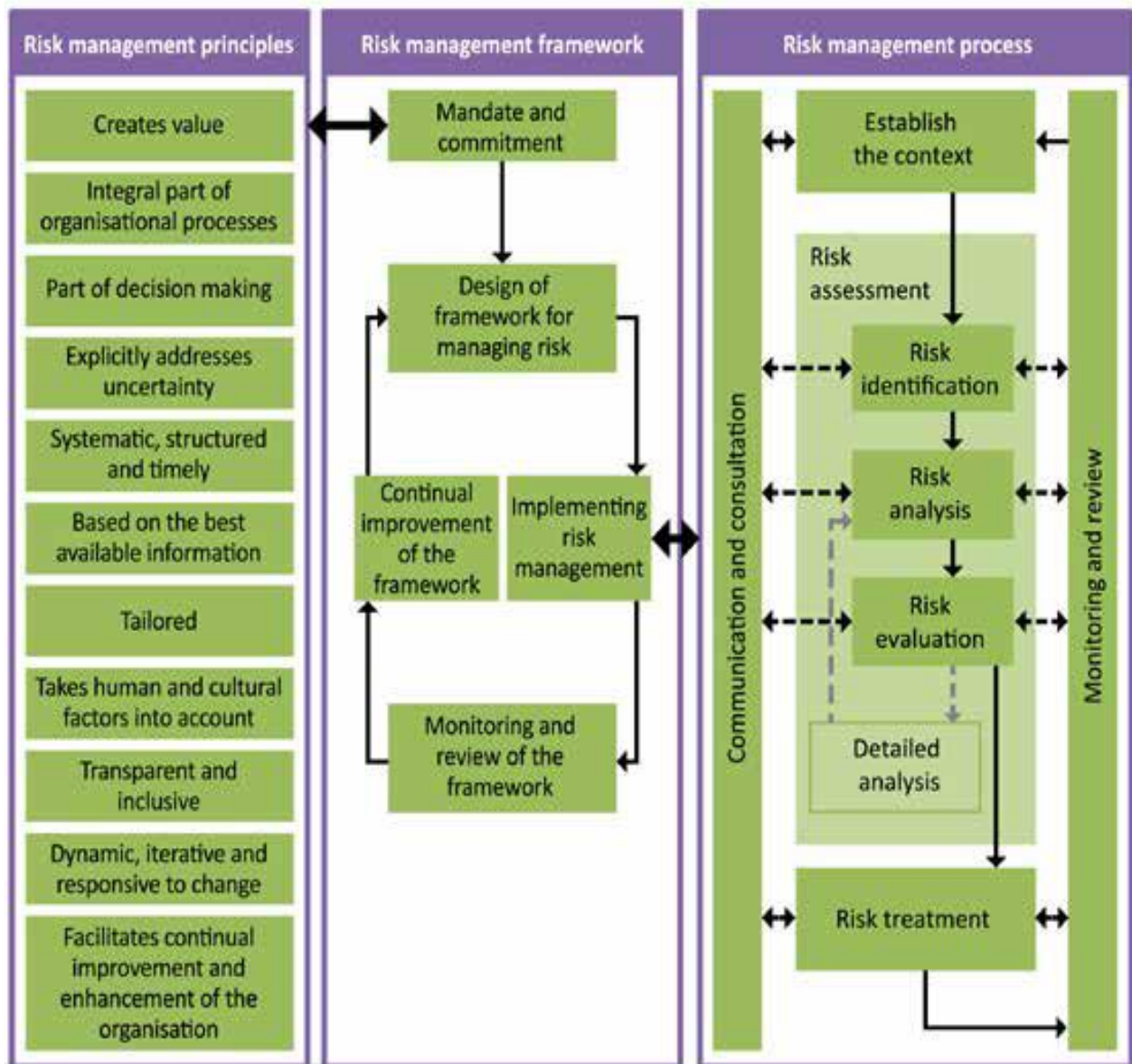
Establishing the context for the risk assessment is extremely important and will ultimately affect the direction the risk assessment takes. *ERA* addresses these complexities and the all-hazards approach is consistent with contemporary emergency management policy and practice.

*ERA* focuses on risk assessment that needs to be integrated into an appropriate governance framework.

Consistent with ISO 31000:2009, *ERA* describes the importance of:

- integrating with an established risk management framework or creating a new one,
- describing the context for the risk assessment, including the risk criteria,
- communicating and consulting both during and after the risk assessment process,
- treating risks, which involves developing and selecting risk reduction options.

Risk assessment outcomes are not static; they need to be periodically updated to remain current.



Risk management is 'coordinated activities to direct and control an organization with regard to risk', which includes:

- establishing the context, risk assessment, communication and consultation,
- treating risks,
- monitoring and review.

Together, these activities produce priorities recorded in risk management plans, which recommend changes to minimize risk. Emergency-related risk management takes this definition and activity, and places it in a community context. The term 'organization' is considered in a broader sense in the emergency management context to include Duty stations and, rather than individual agencies or businesses.

ISO Guide 73:2009 defines a risk management framework as a 'set of components that provide the foundations and organizational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management throughout the organization'.

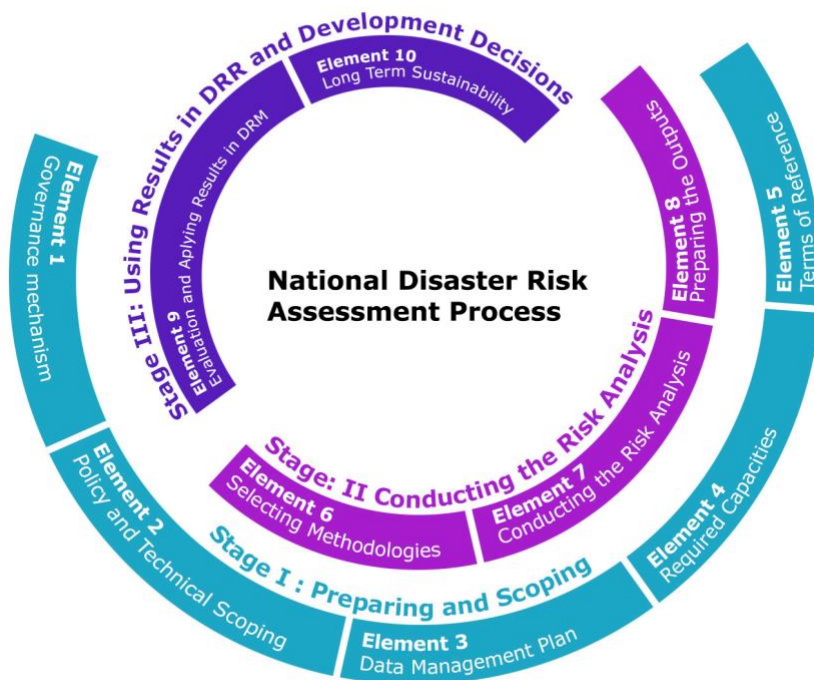
A risk management framework comprises the overarching governance arrangements that allow risk management and risk assessment to occur. It is intended to be embedded within overall strategic and operational policies and practices. It includes:

- foundations (risk management policy, objectives, mandate and commitment to manage risk)
- organizational arrangements (plans, relationships, accountabilities, resources, processes and activities).

Risk assessment is the 'overall process of risk identification, risk analysis, and risk evaluation', and includes:

- Risk identification: the ‘process of finding, recognizing and describing risks’,
- Risk analysis: the ‘process to comprehend the nature of risk and to determine the level of risk’
- Risk evaluation: the ‘process of comparing the results of risk analysis with risk criteria to determine whether the risk and/or its magnitude are acceptable or tolerable’.

According to UNISDR (2017), the 10 enabling elements for designing and implementing an assessment are clustered in three stages. The elements are interlinked through many common topics for attention and feedback loops.



### Process of disaster risk assessment

This process flow is the basis for most European assessments and for the Australian national risk assessment guidelines and some others. Below is a description of each component of the process, cross-referencing the elements in the Guidelines that cover that step.

- 1. Establishing context:** This step is concerned with understanding the risk management context in order to define the purpose and scope of the risk assessment. It includes engaging and consulting with stakeholders and defining criteria for decisions. In the NDRA, establishing context starts in element 1 and is then completed with policy and technical scoping in element 2.
- 2. Risk identification:** From a disaster risk assessment perspective, this step is concerned with a very high-level scoping of hazard, exposure and vulnerabilities to define the direction for the rest of the assessment process. It uses the knowledge and experience of stakeholders, data on past disasters and risk information to draw initial conclusions about the importance of a specific hazard, assets, known vulnerabilities and major impacts of concern for a DRA. Consideration should be given to both extensive (frequent, low-impact) and intensive (occasional, high-impact) events, as well as potential cascading events and simultaneous events linked to the same cause. In the NDRA, disaster risk identification starts in element 2 and is then completed with more technical depth in element 6.
- 3. Risk analysis:** This step is concerned with obtaining a more detailed understanding of the disaster risk: detailed hazard analysis, exposure analysis, vulnerability analysis and capacity analysis. The analysis

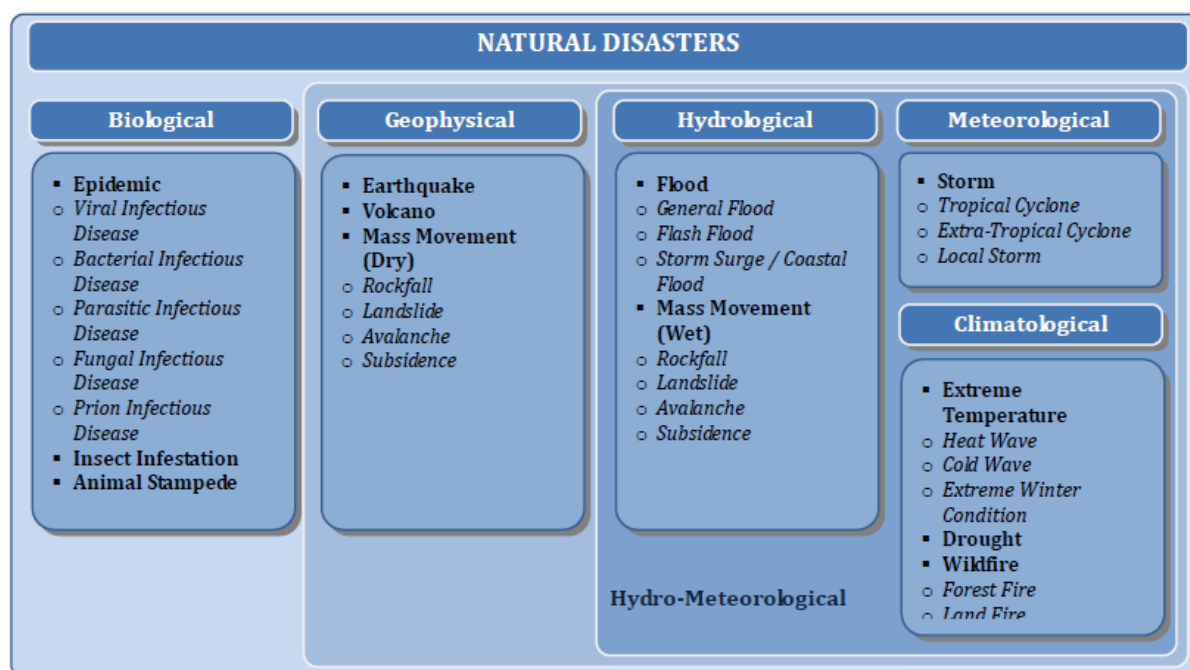
provides insight into the interaction of a single hazard or a multi-hazard with the exposure and all dimensions of vulnerabilities (physical, environmental, social, economic and cultural). Each point of interaction of disaster risk components creates a unique coupling: a specific impact and its likelihood. Another component of risk analysis is understanding and evaluating the effectiveness of the existing capacities (or the controls and measures in place for managing the risk, as this is called in ISO: 31010). Understanding the effectiveness of capacities is critical for identifying targeted measures to manage the risk. Risk analysis also includes assessing the confidence level or the level of uncertainty. This is relevant for both single-hazard and multi-hazard disaster risk analysis, with any time-horizon. Risk analysis is covered in elements 6 and 7.

- 4. Risk evaluation:** This step allows for risk prioritization for the purpose of managing the risk. The multi-hazard disaster risks analyzed for likelihood and impact could be presented in different ways to facilitate the visualization and prioritization process. The risk prioritization is further adjusted based on an understanding of capacities, risk perception and risk acceptance of the whole of a duty station's or Mission AOR's "workers", and by the availability and level of resources to manage the risks. This requires input from those owning the risk and who are responsible for disaster risk management.
- The whole of interested parties is represented through stakeholder coordination and communication mechanisms to define the priority disaster risks. Only then is there a legitimate basis for disaster risk prioritization – defining the risks of high societal importance that require immediate attention, the risks that could be tolerated or neglected, and the risks that need to be closely monitored. Risk evaluation is covered in elements 8 and 9.

**Table X - Mapping of ISO steps to the elements in the Guidelines**

ISO steps	NDRA elements	
<b>Establishing context</b>	<b>Element 1</b>	Establishing NDRA governance mechanism
	<b>Element 2</b>	Defining the policy scope and technical scope of NDRA
<b>Risk identification</b>	<b>Element 2</b>	Defining the policy scope and technical scope of NDRA
	<b>Element 6</b>	Selecting risk analysis methodologies
<b>Risk analysis</b>	<b>Element 6</b>	Selecting risk analysis methodologies
	<b>Element 7</b>	Conducting risk analysis
<b>Risk evaluation</b>	<b>Element 8</b>	Preparing the outputs of risk analysis for communication with stakeholders
	<b>Element 9</b>	Facilitating the process for applying results in DRM decisions and solutions

## Annex 4: CRED Classification of Natural Disasters:



Disaster Subgroup	Definition	Disaster Main Type
<b>Geophysical</b>	Events originating from solid earth	Earthquake, Volcano, Mass Movement (dry)
<b>Meteorological</b>	Events caused by short-lived/small to meso scale atmospheric processes (in the spectrum from minutes to days)	Storm
<b>Hydrological</b>	Events caused by deviations in the normal water cycle and/or overflow of bodies of water caused by wind set-up	Flood, Mass Movement (wet)
<b>Climatological</b>	Events caused by long-lived/meso to macro scale processes (in the spectrum from intra-seasonal to multi-decadal climate variability)	Extreme Temperature, Drought, Wildfire
<b>Biological</b>	Disaster caused by the exposure of living organisms to germs and toxic substances	Epidemic, Insect Infestation, Animal Stampede



The classification adopted (CRED or IRDR) should serve the purpose of obtaining comparable and standardized data from reliable International databases. For this purpose, both CRED and all existing disaster data collection initiatives (EM-DAT website, Munich RE/Geo website in the “NatCatSERVICE” ... etc) need to be consulted before filling out the ERA Matrix and defining the list of Natural and technological disasters specific to a duty station.

## **Annex 4: Local Emergency Manager**

### **Manages resources before, during, and after a major emergency or disaster:**

- Taking inventory of personnel and material resources to include the private-sector sources that would be available in an emergency.
- Identifying resource deficiencies and working with appropriate officials on measures to resolve them.
- Developing and carrying out public awareness and education programs.

### **Conduct activities related to the key components of emergency management:**

- Coordinating the planning process and working cooperatively with organizations, Agencies, INGO and local authorities.
- Identifying and analyzing the potential impacts of hazards that threaten the duty station / Mission AOR.
- Conducting threat/hazard and risk assessments.
- Coordinating a review of all local emergency- and disaster-related authorities and recommending amendments, when necessary.

### **Coordinate with all partners in the emergency management process, to ensure they:**

- Are aware of potential threats to the community, including establishing a system to alert officials/DO, SMT Members and the public in an emergency or disaster.
- Participate in mitigation and prevention activities.
- Plan for emergencies and disasters using an all-hazards approach, including establishing and maintaining networks of expert advisors and damage assessors for all hazards.
- Operate effectively in emergency situations.
- Conduct effective recovery operations after a disaster.
- Are advised and informed about emergency management activities.

An important part of the local emergency manager's role is coordinating with all partners in the emergency management system to ensure the whole community is prepared. These partners include:

- DO and SMT
- UNDSS
- Local Authorities,
- Specialized Agencies,
- Sapeurs Pompiers/ Fire services,
- Police/Gendarmerie, Garde Civile, Protection Civile,
- Emergency medical programs/EMS,
- Public works,
- Volunteers and voluntary organizations,
- INGOs /NGOs and nonprofit sector organizations,
- Other groups involved in emergency activities,
- Citizens.

The local emergency manager must devote significant time and energy coordinating with a variety of people and organizations within and outside of the Organization.



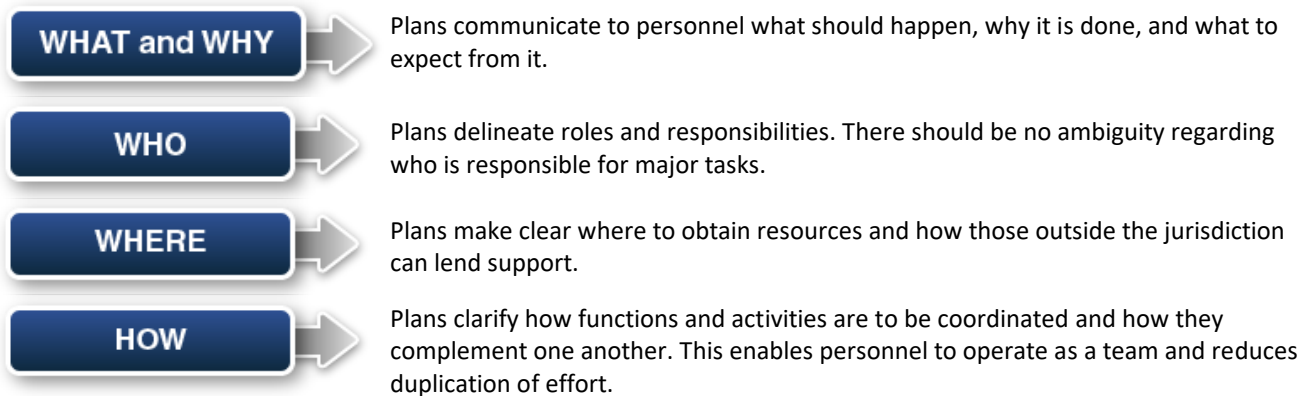
## Annex 5: Preparedness and Planning

Planning is a key component of the preparedness cycle, a process for managing risk. Plans are continuously evaluated and improved through a cycle of planning, organizing and equipping, training, exercising, evaluating, and taking corrective action to improve performance and reduce or eliminate identified risks.



### Planning and Risk Management

Planning helps manage risk by clarifying elements of the situation:



### Tiers of Planning

Response planning efforts cannot succeed without integration. For example, an operational plan translates the broader vision into standard practices, while a tactical plan further refines those practices for a specific incident. All three tiers of planning occur at all levels of government.

- **Strategic planning** - describes how a jurisdiction wants to meet its emergency management or homeland security responsibilities over the long term. These plans are driven by policy from senior officials and establish planning priorities.
- **Operational planning** - describes roles and responsibilities, tasks, integration, and actions required of a jurisdiction or its departments and agencies during emergencies. These plans tend to focus more on the broader physical, spatial, and time-related dimensions of an operation; thus, they tend to be more complex and comprehensive, yet less defined, than tactical plans.
- **Tactical planning** - based on existing operational plans, focus on managing personnel, equipment, and resources that play a direct role in an incident response.

### Types of Plans

Building and sustaining safe and resilient communities requires planning in all mission areas, as well as continuity of operations and other aspects of preparedness. The Organization has a variety of plans in place to ensure that all departments remain fully prepared.



## Emergency Operations Plans

An emergency operations plan, or EOP, is a document that describes how people and property will be protected during an emergency. The EOP:

- Details who is responsible for carrying out specific actions.
- Sets forth lines of authority and organizational relationships and outlines how actions will be coordinated.
- Identifies personnel, equipment, facilities, supplies, and other resources available within the Duty Station or by agreement with other Duty stations or mutual aid partners.
- Reconciles requirements with other jurisdictions.

## Emergency Planning Step 6: Implement and Maintain the Plan



The final step in the planning process is to implement and maintain the plan. This step involves an ongoing process of:

- Training personnel to perform tasks identified in the plan.
- Exercising and evaluating plan effectiveness.
- Revising and maintaining the plan.

### Training

After the plan is finalized and disseminated, training should be provided to ensure that stakeholders—including organizations, personnel, senior officials, and response partners:

- Have the knowledge, skills, and abilities needed to perform the tasks identified in the plan.
- Are familiar with the organization-specific procedures necessary to support those tasks.
- Are prepared to communicate and coordinate with others involved in implementing the plan.

### Training Options

Training Type	Appropriate for Providing . . .
<b>Classroom</b>	<ul style="list-style-type: none"> <li>• A knowledge base on new or revised processes and/or procedures.</li> <li>• The skills needed to perform tasks that would be done manually (e.g., analyzing information from documents provided) or with equipment contained in the classroom (e.g., computers, telephones) or on the job.</li> </ul>
<b>Independent Study</b>	<ul style="list-style-type: none"> <li>• Knowledge acquisition at a pace that is comfortable for the student.</li> <li>• An opportunity to learn and apply knowledge and skills (e.g., through a tutorial) in a self-paced environment.</li> </ul>
<b>On-the-Job Training</b>	<ul style="list-style-type: none"> <li>• An opportunity to learn and perform tasks in a real-life environment with the supervision of an expert performer. (A related form of training is the <b>practicum</b>, which is designed to give the learner supervised practical application of a previously or concurrently studied theory. Another option, <b>shadowing</b>, allows the learner to observe an expert performer on the job.)</li> </ul>
<b>Briefings</b>	<ul style="list-style-type: none"> <li>• New information, usually at a high level, presented to all persons who have a need to know or use the information. Briefings are often provided to large groups and include a question-and-answer session.</li> </ul>
<b>Seminars</b>	<ul style="list-style-type: none"> <li>• Opportunities for small numbers of job performers to discuss specific topics, usually with the advice of an expert performer. Seminars usually involve new policies, procedures, or solutions to problems being presented to the group.</li> </ul>
<b>Workshops</b>	<ul style="list-style-type: none"> <li>• Opportunities for small numbers of job performers to discuss issues and apply knowledge and skills to solving problems or producing a product. Workshops are generally highly structured and their outputs are usually a product that meets specified criteria (e.g., a list of assumptions that will be used as a basis for developing the emergency operations plan).</li> </ul>
<b>Job Aids</b>	<ul style="list-style-type: none"> <li>• Quick references that are intended to be used on the job. Common job aids include checklists, worksheets, standard operating procedures, reference guides, etc.</li> </ul>

## Annex 6: EOP Planning Principles

Before reviewing each EOP planning step, it is important to understand the following key principles:

**Planning must be community based, representing the whole population and its needs.** Understanding the composition of the population—such as accounting for people with disabilities, others with access and functional needs, and for the needs of children—must occur from the outset of the planning effort.

Establishing a profile of the community will also let planners know if courses of action are feasible. By fully understanding the composition and requirements of the actual population (including all segments of the community), community-based plans will lead to improved response and recovery activities and, ultimately, overall preparedness.

**Planning must include participation from all stakeholders in the community.** Effective planning ensures that the whole community is represented and involved in the planning process. The most realistic and complete plans are prepared by a diverse planning team, including representatives from the Staff of different Organizations, UNDSS, Emergency Manager, CISMU, Specialized Agencies, Senior Management, Risk Assessors/Analysts, ... etc, who are able to contribute critical perspectives and/or have a role in executing the plan. The demographics of the community will aid in determining who to involve as the planning team is constructed. Including staff Union representatives of the different personnel components ( Locally Recruited/Internationally recruited, support sections/substantive sections, single parents, from districts/sub-districts, ...etc) of entire system in planning reinforces the expectation that the Staff members and their Representatives have a shared responsibility and strengthens the motivation to conduct planning for themselves, their families, and their organizations. For example, it is essential to incorporate individuals with disabilities or specific access and functional needs and individuals with limited English proficiency, as well as the groups and organizations that support these individuals, in all aspects of the planning process. When the plan considers and incorporates the views of the individuals and organizations assigned tasks within it, they are more likely to accept and use the plan.

**Planning uses a logical and analytical problem-solving process to help address the complexity and uncertainty inherent in potential hazards and threats.** By following a set of logical steps that includes gathering and analyzing information, determining operational objectives, and developing alternative ways to achieve the objectives, planning allows a Duty stations / Mission AOR's response structure to work through complex situations. Planning helps a CO identify the resources at its disposal to perform critical tasks and achieve desired outcomes/target levels of performance. Rather than concentrating on every detail of how to achieve the objective, an effective plan structures thinking and supports insight, creativity, and initiative in the face of an uncertain and fluid environment. While using a prescribed planning process cannot guarantee success, inadequate plans and insufficient planning are proven contributors to failure.

**Planning considers all threats and hazards.** While the causes of emergencies can vary greatly, many of the effects do not. Planners can address common operational functions in their basic plans instead of having unique plans for every type of threat or hazard. For example, floods, wildfires, hazmat releases, and radiological dispersal devices may lead a DO to issue an evacuation order. Even though each hazard's characteristics (e.g., speed of onset, size of the affected area) are different, the general tasks for conducting an evacuation operations are the same. Planning for all threats and hazards ensures that, when addressing emergency functions, planners identify common tasks and those responsible for accomplishing the tasks.

**Planning should be flexible enough to address both traditional and catastrophic incidents.** Scalable planning solutions are the most likely to be understood and executed properly by the operational personnel who have practice in applying them. Planners can test whether critical plan elements are sufficiently flexible by exercising them against scenarios of varying type and magnitude. In some cases, planners may determine that

exceptional policies and approaches are necessary for responding to and recovering from catastrophic incidents. These exceptional planning solutions should be documented within plans, along with clear descriptions of the triggers that indicate they are necessary.

**Plans must clearly identify the mission and supporting goals** (with desired results). More than any other plan element, the clear definition of the mission and supporting goals (which specify desired results/end-states) enables unity of effort and consistency of purpose among the multiple groups and activities involved in executing the plan. Every other plan element should be designed and evaluated according to its contributions to accomplishing the mission and achieving the goals and desired results.

**Planning depicts the anticipated environment for action.** This anticipation promotes early understanding and agreement on planning assumptions and risks, as well as the context for interaction. In situations where a specific hazard has not been experienced, planning provides the opportunity to anticipate conditions and systematically identify potential problems and workable solutions. Planners should review existing EOPs to ensure current assumptions are still necessary and valid. After-action reports (AARs) of recent emergency operations and exercises in the Duty Station will help planners develop a list of lessons learned to address when updating plans.

**Planning does not need to start from scratch.** Planners should take advantage of the experience of other planners, as well as plans generated by other Duty Stations. Further, many Organizations and countries publish their own standards and guidance for emergency planning, conduct workshops and training courses, and assign their planners to work with local planners. FEMA, NY DOH, NAEMT, Universities, Non Profit Organizations offer resident, locally presented, and independent study emergency planning courses. The same entities also publish guidance related to planning for specific functions and risks.

**Planning identifies tasks, allocates resources to accomplish those tasks, and establishes accountability.**

Decision makers must ensure that they provide planners with clearly established priorities and adequate resources; additionally, planners and plan participants should be held accountable for effective planning and execution.

**Planning includes senior officials throughout the process to ensure both understanding and approval.**

Potential planning team members have many day-to-day concerns but must be reminded that emergency planning is a high priority. Senior official/Top Management /DO/SMT buy-in helps the planning process meet requirements of time, planning horizons, simplicity, and level of detail. The more involved decision makers are in planning, the better the planning product will be.

**Time, uncertainty, risk, and experience influence planning.** These factors define the starting point where planners apply appropriate concepts and methods to create solutions to particular problems. Planning is, therefore, often considered to be both an art and a science in that successful planners are able to draw from both operational experience and an understanding of emergency management principles, but also are intuitive, creative, and have the ability to anticipate the unexpected. While the science and fundamental principles of planning can be learned through training and experience, the art of planning requires an understanding of the dynamic relationships among stakeholders, of special political considerations, and of the complexity imposed by the situation. Because this activity involves judgment and the balancing of competing demands, plans should not be overly detailed—to be followed by the letter—or so general that they provide insufficient direction. Mastering the balance of art and science is the most challenging aspect of becoming a successful planner.

**Effective plans tell those with operational responsibilities what to do and why to do it,** and they instruct those outside the Duty Station/Mission AOR in how to provide support and what to expect. Plans must clearly communicate to operational personnel and support providers what their roles and responsibilities are and how those complement the activities of others. There should be no ambiguity regarding who is responsible for

major tasks. This enables personnel to operate as a productive team more effectively, reducing duplication of effort and enhancing the benefits of collaboration.

**Planning is fundamentally a process to manage risk.** Risk management is a process by which context is defined, risks are identified and assessed, and courses of action for managing those risks are analyzed, decided upon, and implemented, monitored, and evaluated. As part of the process, planning is a tool that allows for systematic risk management to reduce or eliminate risks in the future.

**Planning is one of the key components of preparedness.** Plans are continuously evaluated and improved through a cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action.

## Annex 7: Developing and Maintaining EOPs

The process for developing and maintaining EOPs builds on THIRA results and includes the following steps:



### Step 1: Form a Collaborative Planning Team

Experiences and best practices show that planning is most effective when performed by a team. The steps to form a collaborative planning team include:

- **Identifying the core planning team.** The emergency manager should provide oversight of the planning team, although other departments /Divisions / Sections may have overlapping or complementary responsibilities. The involvement of executives from member agencies or departments is critical.
- **Engaging the whole community.** Planning that is for all personnel and involves all personnel is crucial to the success of the plan. Effectively involving all workers is a challenge, but the staff Union representatives provide keen insight into the community's needs and capabilities.

### Step 2: Understand the Situation

This step describes important actions and procedures needed to:

- Identify the threats and hazards in the Duty Station/Mission AOR using the results of DRA, follow-on assessments, and other existing information about the Duty Station (for example, Previous RA, Specialized websites, ... etc),
- Assess the risk associated with those threats and hazards to help the planning team decide which ones merit special attention.

### Step 3: Determine Goals and Objectives

Goals and objectives must be developed to ensure they support accomplishing the mission of the plan and operational priorities. Goals should clearly indicate the desired result.

- **Goals** are broad, general statements that indicate the intended solution to problems identified by planners when identifying threats/hazards and assessing risk in the previous step.
- **Objectives** are specific actions that lead to achieving the identified goals of the plan. Objectives will be translated to activities and procedures.

**Plan Mission:** Effectively coordinate & direct available resources to protect the public & property from threats & hazards.

**Operational Priority:** Protect the public from hurricane weather and storm surge.

**Goal:** Complete evacuation before arrival of tropical storm winds.

**Desired result:** All self-evacuees and assisted evacuees are safely outside of the expected impact area prior to impact.

**Objective:** Complete tourist evacuation 72 hours before arrival of tropical storm winds.

**Desired result:** Tourist segment of public protected prior to threat or hazard onset, allowing resources to be redirected to accomplishing other objectives in support of this goal or other goals.

### Step 4: Plan Development and Step 5: Plan Preparation, Review, and Approval

Steps 4 and 5 are the process of developing a plan for a Duty Station and having it reviewed, approved, and disseminated. A traditional plan has three components: the basic plan, supporting annexes, and threat/hazard/incident-specific annexes.

## Basic Plan

The basic plan provides an overview of the Duty Station's preparedness and response strategies. It describes expected threats/hazards, outlines roles and responsibilities, and explains how the plan is kept current.

1. The **Introductory Material** section typically includes a(n):
  - **Promulgation Document/Signature Page** that is a signed statement by the DO formally recognizing and adopting the plan as the Duty Station's EOP that addresses all threats and hazards.
  - **Approval and Implementation** section that introduces the plan, outlines its applicability, and indicates it supersedes all previous plans.
  - **Record of Changes** that contains a change number, date of the change, name of the person who made the change, and a summary of the change.
  - **Record of Distribution** that indicates the title and name of the person receiving the plan, the agency to which the receiver belongs, the date of delivery, and the number of copies delivered.
  - **Table of Contents** that outlines the plan's format, key sections, attachments, charts, etc.
2. The **Purpose, Scope, Situation Overview, and Assumptions** section explains the plan's intent, who is involved, and why the plan was developed.
  - **Purpose:** Describes the purpose for developing and maintaining an EOP.
  - **Scope:** Describes at what times and under what conditions the plan would be activated.
  - **Situation Overview:** Provides an overview of the steps taken by the Duty Station to prepare for disasters.
  - **Planning Assumptions:** Identifies what the planning team assumes to be facts for planning purposes.
3. The **Concept of Operations** section explains what response activities should occur, within what timeframe, and at whose direction. It describes:
  - Who has authority to activate the plan,
  - The process, templates, and individuals involved in issuing a declaration of emergency,
  - How legal questions are resolved,
  - Agency coordination,
  - How plans take into account the needs of children,
  - How plans take into account the physical, programmatic, and communications needs of individuals with disabilities and others with access and functional needs,
  - Other response plans that support the plan.
4. The **Organization and Assignment of Responsibilities** section describes how the DS will be organized to respond to emergencies. It should describe the responsibilities for the following (but not limited to these):
  - DO and SMT
  - Local departments such as: UNDSS, CISMU, emergency medical services (Public +/- Private), Fire Department, public health, emergency management, Local authorities, Local Police, Local Civile Protection, Local Hospitals, First responders, UNMERT, UNDAC, ...etc,
  - Communications and public information functions
  - Mass care
  - INGOs, NGOs, Voluntary organizations
5. The **Direction, Control, and Coordination** section describes the framework for all direction, control, and coordination activities including who has tactical and operational control of assets and multijurisdictional coordination systems used during an emergency.
6. The **Information Collection, Analysis, and Dissemination** section describes:
  - Information dissemination methods,
  - Critical information needs and collection priorities,
  - Information collection, analysis, and dissemination strategies,



- Collaboration with the general public.
7. The **Communications** section describes:
    - The framework for delivering communication support and communications integration with other networks,
    - Other interoperable communications plans.
  8. The **Administration, Finance, and Logistics** section describes:
    - Documentation of the response to and recovery from a disaster,
    - After-action results to identify strengths and weaknesses in the response program,
    - Finance protocols to recover costs of the emergency operation,
    - Logistics and resource management mechanisms used to identify and acquire resources.
  9. The **Plan Development and Maintenance** section describes the process used to regularly review and update the EOP.
  10. The **Authorities and References** section provides the legal basis for emergency operations and activities, including:
    - Local ordinances and statutes.
    - Local and UN rules, regulations, laws and administrative code sections.
    - Pertinent laws, regulations, and standards.
    - Reference manuals used to develop the plan.

### Supporting Annexes

Supporting annexes include functional, support, emergency phase, or Organization-focused annexes. While the basic plan provides overarching information on emergency operations, the supporting annexes describe the policies, roles, responsibilities, and processes for a specific emergency function that can be applied to different threats and hazards.

Each annex focuses on one function that the DS has identified as being important during an emergency. The number and type of annexes will vary based on the DS's needs, capabilities, risks, and resources.

### Recommended Functional Annexes

Some recommended functions to include in the functional annexes are:

- *Direction, Control, and Coordination* - This annex allows analyzing the emergency and deciding how to respond by directing and coordinating the efforts of the DS's response forces and coordinating with the mutual aid partners to use all resources efficiently and effectively.
- *Communications* - This annex focuses on the systems that will be relied on for responders and other emergency personnel to communicate with each other (i.e., not with the Staff) during emergencies. It describes the total communications system, including backup systems, and provides procedures for its use.
- *Warning* - This annex describes the warning systems in place and the responsibilities and procedures for issuing warnings to the Staff. All components of the warning system should be described, including contingency plans to ensure that warning information is available to the Staff and pre-scripted messages for identified threats and hazards.
- *External Affairs/Emergency Public Information* - This annex describes the methods that the DS will use to provide information to the Staff before, during, and after an emergency.
- *Staff members Protection* - This annex describes the provisions (e.g., for evacuation or in-place sheltering) that have been made to ensure the safety of people affected by the threats and hazards the DS faces.
- *Mass Care, Emergency Assistance, Housing, and Human Services* - This annex addresses the actions that will be taken to protect evacuees and others from the effects of the event. This annex describes how sheltering, food distribution, medical care, clothing, and other essential life support needs will be provided to those who have been displaced by a threat/hazard.

- *Public Health and Medical Services* - This annex addresses the activities associated with the provision of health and medical services in emergencies, including emergency medical, hospital, public health, environmental health, mental health, and mortuary services.
- *Logistics Management and Resource Support* - This annex describes existing resources, the identification of probable resource needs, and a description of how additional resources will be acquired and distributed.

### **Hazard-, Threat-, or Incident-Specific Annexes**

The hazard-, threat-, or incident-specific annexes should describe emergency response procedures for each threat or hazard that the plan addresses. These annexes focus on the unique planning needs generated by the one threat or hazard and are based on special planning requirements that are not common across all threats. By developing hazard-, threat-, or incident-specific annexes, planners address the special or unique response considerations related to each threat for which the DS is at high risk.

### **Step 6: Plan Implementation and Maintenance**

The last step in the planning process is plan implementation and maintenance. Plans must not be placed on a shelf to collect dust; they must be maintained, and the information communicated to:

- Officials / Decision makers who need to coordinate the plan with their EOPs.
- Response personnel both inside and outside of the Organization who share responsibility for implementing the plan, reducing damage, and saving lives.
- The local Staff and Representatives, which have expectations concerning the Organization's role in an emergency and, collectively, is critical to the plan's success.

The best way to communicate the plan to personnel and response agencies that are responsible for implementing it is through training and exercising.

### **Training**

Training is critical to response personnel so that they know:

- What they are supposed to do.
- When they are to do it.
- How they are to do it, including procedures for:
  - Accomplishing their task or mission.
  - Coordinating efforts with personnel within and outside of the agency.
  - Communicating needs and status.

Training can include a wide range of activities, from classroom training to on-the-job training to the use of checklists, worksheets, and job aids. The type and duration of the training selected depends on the frequency and complexity of the task to be trained.

### **Exercises**

Exercises are critical to a plan's success and a successful response because they show whether what appears to work on paper actually does work in practice. Exercise types vary by level of realism, complexity, and stress levels.

## Annex X: General principles for Hospital Preparedness to MCIs and Disasters<sup>38</sup>

The very nature and purpose of a hospital, as the initial sources of medical care, demands that it remains fully operational in the aftermath of any major disaster.

Although hospitals are essential for dealing with disasters, their complexity, occupancy level and specific equipment and installations also make them very vulnerable in various aspects: structural (load bearing system), nonstructural (architectural elements, installation and equipment) and administrative (organization of space, functions, staff, procedures, etc.).

Knowledge of the impact of facility damages on hospital operations is of major importance for the following reasons:

1. Hospital facilities must maintain their normal functions and attend to the sudden surge in demand for medical treatment following a disaster;
2. In contrast to other types of buildings, hospitals accommodate a large number of patients, who, due to their disabilities, are unable to evacuate a building in the event of a disaster caused by natural hazards;
3. Hospitals have a complex network of electrical, mechanical, and sanitary facilities, as well as expensive equipment, all of which are essential for the routine operation of the hospital and for emergency care;
4. The ratio of the cost of non-structural elements to the total cost of the building is much higher in hospitals than in other buildings. In fact, while nonstructural elements represent approximately 60% of the value in housing and office buildings, these values range between 85% and 90% in hospitals, mainly due to the high cost of medical equipment and specialized facilities.

The Hyogo framework for Action for 2005–2015, recommends the integration of disaster risk reduction planning into the health sector; promoting the goal of “hospitals safe from disasters”. A remarkable product of this campaign was the evaluation forms for the safe hospital, the [Hospital Safety Index \(HIS\)](#) which was initially developed by the PAHO. The HIS is a rapid and low-cost toll to assess the probability of a hospital or health facility remaining operational in emergency situations.

[www.who.int/hac/techguidance/hospital\\_safety\\_index\\_evaluators.pdf](http://www.who.int/hac/techguidance/hospital_safety_index_evaluators.pdf)

The HIS consists of 2 main forms:

- **Form 1, “general Information about the Health facility”** includes the name of facility, number of beds by services or medical specialties, hospital occupancy rate, number of personnel, expansion capacity in case of disaster etc
- **Form 2, “Safe Hospital Checklist”** is used for preliminary diagnosis of the hospital safety in the event of disasters. It contains 145 variables, and each has 3 safety levels: low, medium and high. It is divided into 4 modules:
  - 1) Geographical location of the health facility,
  - 2) Structural safety,
  - 3) Nonstructural safety and
  - 4) Functional capacity.

The sum of the 3 modules (2+3+4) gives the HIS. The index is expressed as the probability that a facility will be able to continue its safety and function in a disaster situation as detailed hereunder:

- **A (0.66-1):** it is likely that the hospital will function in a case of a disaster. It is recommended that the hospital improves response capacity and carry out preventive measures in the medium and long term to improve the safety level in case of disaster.
- **B (0.36-0.65):** intervention measures are needed in the short term. The hospital’s ability to function during and after a disaster is potentially at risk
- **C (0-0.35):** urgent intervention measures are needed. The hospital safety level is inadequate to protect the lives of patients and hospital staff during and after a disaster.

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<sup>38</sup> Prof. Francesco Della Corte et al. – EMDM

## Vulnerable elements of a hospital

A reliable and comprehensive hospital vulnerability assessment can be carried out only by taking into account main categories of vulnerability in the following order: 1. Structural, 2. nonstructural 3. admin/organizational

### - Structural elements

The structural elements include foundations, columns, bearing walls, beams, staircases and floors.

Evaluation of the structural vulnerability and relevant issues are specific to type of a hazard, e.g. in evaluation of structural vulnerability with respect to earthquake, these factors must be considered:

- General building data. This section includes information on:
  - Number of buildings (if the facility contains several buildings)
  - Year of construction
  - Building type
  - Number of story
  - Total building area
  - Building function.
- Occupancy load. Information about occupancy load is important in setting priorities for earthquake mitigation plans.
- The soil category. Where the health facility is located is crucial, since this factor plays an important role in vulnerability evaluation through the selection of appropriate vulnerability index modifiers.
- Existing damage. Information on existing damage or previous interventions in the building is required to define vulnerability index modifiers regarding building maintenance and retrofitting work.
- Vulnerability indices/modifiers. The vulnerability modifiers are the same for all masonry building types. The vulnerability indices for reinforced concrete buildings depend on the construction period. 3 periods are introduced and in general represent: a. the no-code to low-code period, b. the medium-code period, c. the high-code period. In the forms the following 3 periods are proposed: before 1970, 1970–80 and after 1980.
- Ductility (i.e., energy absorption capacity) and structural redundancy have proven to be the most effective means of providing safety against collapse, especially if the movements are more severe than those anticipated by the original design. Severe damage or collapse of many structures during major earthquakes is, in general, a direct consequence of the failure of a single element or series of elements with insufficient ductility or strength.

The consequences of structural elements vulnerability may be classified as:

- Negligible to slight damage
- Moderate damage
- Substantial to heavy damage
- Very heavy damage
- Destruction

### - Nonstructural elements

The nonstructural vulnerability evaluation considers architectural elements, equipment and furnishings, and basic installations and services (Table 2).

Architectural Elements	Installations	Equipment and furnishings
<ul style="list-style-type: none"><li>- Divisions and partitions</li><li>- Interiors</li><li>- Facades</li><li>- False ceilings</li><li>- Covering elements</li><li>- Cornices</li><li>- Terraces</li><li>- Chimneys</li><li>- Glass</li><li>- Attachments</li><li>- Ceilings</li></ul>	<ul style="list-style-type: none"><li>- Drinking water</li><li>- Industrial water</li><li>- Steam</li><li>- Medical gasses</li><li>- Industrial fuel</li><li>- Vacuum network</li><li>- Air conditioning</li><li>- Piping</li><li>- Waste disposal</li></ul>	<ul style="list-style-type: none"><li>- Medical equipment</li><li>- Industrial equipment</li><li>- Office equipment</li><li>- Furnishings</li><li>- Supplies</li><li>- Clinical files</li><li>- Pharmacy shelving</li><li>- Laboratory shelving</li></ul>

- Antennas		
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The nonstructural vulnerability can be divided into three categories:

- Low vulnerability;
- Moderate vulnerability;
- High vulnerability.

Besides, the consequences of nonstructural elements vulnerability may be divided into three categories:

- Low consequences: owing to its location in the building or to its type, damage to the component will probability not causing injury to the occupants or interfere with the performance of the facility;
- Moderate consequences: owing to its location or to its type, damage to the component represents a moderate probability of causing injury to the occupants or of interfering with the performance of the facility;
- High consequences: damage to the component will very probably cause injury (and even death) of the occupants, or seriously compromise the performance of the facility.

A matrix of the consequences and the vulnerability evaluation prioritizes the interventions for reducing the nonstructural vulnerability (Table 3).

Vulnerability	Consequences		
	High	Moderate	Low
High	1	4	7
Moderate	2	5	8
Low	3	6	9

In addition, nonstructural risk level could be done as these ratings:

- **Life safety risk:** the risk of being injured by the item. This does not include the overall impact on safety systems in a building, such as loss of emergency power in a hospital or loss of fire detection capability. These disruptions of service are covered under loss of function below.
- **Property loss risk:** the risk of incurring a repair or replacement cost because of damage to the item. This property loss, as used here, includes the cost of mending a broken pipe but not the indirect cost of damage due to leaked water, and includes the cost of repairing a computer but not any loss of business revenue due to computer downtime. These indirect effects cannot be estimated here on a generic basis.
- **Loss of function risk:** the risk that the item will not function because it has been damaged. This includes some consideration of the impact of this loss of function of the component on the operation of an ordinary occupancy building. Not included are off-site effects, such as the loss of function of a piece of equipment because of a city-wide power cut. Losses of power, water and other utilities are real problems to consider but are outside the scope of the item-by-item ratings here.

#### - [The administrative/ organizational elements](#)

The administrative/ organizational elements cover two aspects: administrative and organizational. Of all the elements that interact in the day-to-day operations of a health facility, the administrative and organizational aspects are among the most important ones. They include all physical and administrative measures that are requested for organizing hospital personnel to respond in disaster situations and save hospital's capacity to function during and after a disaster. The administrative and spatial organization of a hospital has to provide an optimal environment for performing diverse functions such as:

- Outpatient-related functions
- Diagnostic and treatment functions
- Administrative functions
- Service functions (food, supplies)
- Research and teaching functions.
- **Administrative aspects.** Some important issues that must be evaluated in the context of administrative vulnerability are contracting, acquisitions and routine maintenance, as well as the physical and functional interdependence of the different areas of the facility. Also, administrative procedures related to

infrastructure, including the resources that are supplied by public utility networks, such as communications and information systems, water supply and power supply must be taken into account.

For the assessment of administrative procedures, the starting point must be the spatial-administrative relationships within the hospital and with its environment, including special agreements with public utility companies and suppliers in general.

- Organizational aspects. In organizational aspect, some important parts are included, which are related to day-to-day operation of a hospital and continuous and smooth operation of it greatly depends on optimized organization of them, as follows:
  - Personnel (number, professional skills, flexibility)
  - Equipment (availability, reliability, distribution, maintenance)
  - Material resources (availability, distribution)
  - Spatial organization.

Administrative/organizational vulnerability depends on several factors:

- Distribution of architectural spaces and their relationship to the medical and support services provided inside the hospital;
- Impact of this distribution on administrative processes such as contracting, procurement, maintenance, case management and internal and external communications; and
- Physical and functional interdependence that link the different areas of a hospital.

Administrative/organizational vulnerability evaluation is subjective, based on the knowledge and experience of the medical staff that are faced with all problems that may arise during the operation of the health facility.

This vulnerability is evaluated for the entire health facility (system level). Assessment of administrative/organizational vulnerability must be made of the following, which are critical for undisturbed operation of a health facility under both normal and emergency conditions.

- Water and electrical power. In order to perform their function properly and continuously, health facilities depend on an uninterrupted supply of clean water and electrical power. In addition to the daily water supply system, hospitals must have water storage tanks or other reliable backup source (e.g. on-site well) to ensure that clean water will be available in the event of an emergency. Health facilities must also be equipped with emergency generators that can start supplying power at any moment.
- Communications. The assessment should cover the service provider; a description, general state and location of the link-up; the number of line extensions and expansion capacity; and alternative communications systems through VHF/FM or other frequencies.
- Roadway system. The assessment should cover the capacity and general state of the main access routes, traffic patterns under normal and critical conditions, and pedestrian routes.
- Processes. These mostly have to do with the movements of people, equipment and supplies within the health facility. They also include routine administrative processes such as hiring, acquisitions, human resource management, and the flow of patients through the various clinical and support service areas of the facility.
- Equipment. Regular inspections and proper maintenance can ensure that key and costly hospital equipment remains in good working order.
- Medical services. This concerns patient service operations in the hospital, covering patient distribution and the services provided in each department (internal medicine, surgery, radiology, etc.). Medical services are dependent on time and spatial factors. During and immediately after a disaster, the types of medical service can be significantly affected by the destructive nature of the disaster. In some cases, even without any limitation of material supply, the operational capacity of a hospital may not be sufficient to meet the increased demand caused by the disaster. Medical service procedures adopted in an emergency situation

can be significantly different from normal procedures; therefore, the input–output relationship established under normal operational conditions is no longer valid for assessment of emergency medical services.

- **Spatial distribution.** Proper spatial distribution will ensure accurate performance of a health facility not only under normal conditions but also in the event of an emergency. Unsuitable spatial distribution of interrelated medical services can lead to disruption of services, even if the structure has not suffered severe damage. Spatial distribution must be assessed on the basis of normal operations and their ability to respond to the massive need for emergency services, as well as the ability of other spaces to be adapted quickly to support the emergency services. For assessing the spatial distribution two issues to be considered include the following:
  - Access to the hospital complex: Vehicle and pedestrian access; access by the staff and the public; auxiliary pedestrian access (exclusively for hospital and services staff); and air access, if available, in the form of a heliport or nearby runway.
  - Internal spatial relations (general hospital ground plan): Division between critical and complementary functional areas; internal and external spatial organization; spatial capacity to provide emergency response services without ignoring regular functions.

It is important to know that the administrative/organizational vulnerability evaluation is performed using a qualitative method, which has the following ratings:

- **Good:** the parameter under review satisfactorily meets current local standards in disaster reduction and there is no need to modify it;
- **Average:** the parameter under review satisfies local standards only moderately and a minor modification could improve performance significantly;
- **Poor:** the parameter under review does not meet local standards and must be modified substantially to resolve this deficiency.

Considering role of hospitals and health facilities in the response to all kinds of natural or manmade disasters, strengthening their safety level to enable them to provide reliable services in crisis situations, when systems typically tend to be overwhelmed, needs to be promoted as a key area of concern in all countries<sup>2</sup>.

When chemical, biological, radiological or nuclear threats – or terrorist attacks – are added to the already extensive list of potential technological and natural hazards, necessity of having a safe and prepared hospital is prominent.

The prevention of the effects of a disaster on a health facility depends on the performance objective that is set a priori for the facility. The 1<sup>st</sup>, most basic performance objective is known as life safety, and is the minimum prerequisite for any kind of infrastructure. The 2<sup>nd</sup> is known as investment protection, and essentially involves the protection of the infrastructure and equipment. It ensures that the facility resumes operations within a reasonable timeframe and cost. The 3<sup>rd</sup> performance objective, the most desirable, is operational protection. It is meant to ensure that the health facility can continue to operate after a potential disaster-producing event has struck. In fact, it is not enough for a hospital to simply remain standing after a disaster; it must continue to function. Depending on the level of safety measures and capability parameters, a hospital's functionality after a disaster can be good, average or poor. Lessons learned from most of previous disasters have shown lack of either safety or preparedness in health care centers, including hospitals. Therefore, having a comprehensive and realistic disaster plan for the community and the hospitals is a necessity to reach the mentioned performance objectives.

A disaster plan is a set of procedures, policies, interaction patterns, roles, and contingencies which are to be implemented in the case of a disaster. A hospital disaster plan covers all phases of a disaster management cycle including mitigation and prevention, preparedness, response, and recovery. Also, it identifies the hospital safety measures and capability parameters that should be considered.

Good structural design is the key to a building's survival in a disaster. The design of hospitals should apply even higher standards than those relevant to buildings meant for housing or offices. Building codes primarily



regulate the design and construction of the structural elements that provide support to the building. Most seismic, flood- or wind-resistant building codes in the region aim to protect the lives of those inside the building, not to ensure the continuity of the building's operations.

Nevertheless, even if there is little or no structural damage, the facility may be unable to function effectively if nonstructural damage causes critical equipment to be dislodged or overturned, essential or dangerous chemicals to be thrown down from shelves, or lifeline services to be interrupted.

Objects and equipment inside hospitals are of great value. Most of these elements, including supplies, are essential for saving lives and can represent a danger in the event of a disaster.

Some important elements and the possible mitigation measures to be undertaken in health facilities, as follows:

- Essential diagnostic equipment;
- Beds for patients;
- Carts;
- Respirators and suction equipment;
- Hazardous substances;
- Monitors;
- Surgery tables;
- Filing cabinets;
- Computers;
- Refrigerators;
- Nuclear medicine.

Safety of existing nonstructural elements can be improved by applying appropriate mitigation measures, as follows:

- Removal is probably the best mitigation option in many cases; e.g. hazardous material;
- Relocation would reduce danger in many cases; e.g. a very heavy object on a top shelf if moved to a floor-level shelf it would not represent any danger to human life or property;
- Restricting the mobility of certain objects such as gas cylinders and power generators is a good measure;
- Supports are suitable in many cases; e.g. ceilings that are hung from cables that only withstand the force of gravity;
- Anchorage is the most widely used precaution for many components, e.g. a water heater;
- Flexible couplings between objects that move independently, e.g. an outside tank joined to the building;
- Substitution, e.g. heavy tiles that could be replaced with a lighter, safer roofing material;
- Modification, e.g. transparent adhesive plastic covering the inside surface of the glass prevents it from shattering;
- Isolation, e.g. if side panels are placed on open shelves or cabinets are provided with doors and latches, their contents will probably not be thrown around the room if an earthquake occurs;
- Reinforcement, e.g. an unreinforced infill wall may be strengthened by covering the surface with wire mesh and cement;
- Redundancy or duplication of items is advisable for some supplies;
- Rapid response and repair.

A hospital can be the victim of a functional collapse, a danger that is often detected only in the middle of an emergency. Functional collapse occurs when the administrative and organizational elements are unable to perform because the disaster has overloaded the system.

To reduce administrative and organizational vulnerability, recommendations must be made regarding efficient spatial distribution and interaction, both under normal conditions and when the number of victims exceeds the everyday capacity of the hospital. These recommendations must include solutions to help improve the

internal and external functioning of the services provided by the hospital in the event of an emergency, for example:

- Optimize the use of available space and the spatial distribution of interrelated medical services;
- Continually improve the quality of services, which will automatically lead to improvements in day-to-day administrative and organizational operation, leading to a hospital that performs more effectively, as a whole, in the event of an emergency or disaster;
- Examine the activities carried out in the different departments of a hospital and the interactions between them;
- Define medical service procedures applicable in an emergency situation;
- Define measures to help improve the functionality of the services provided by the facility and their interaction in the event of an emergency;
- Optimize the distribution/assignment of medical staff and establish an auxiliary organizational scheme applicable in emergency situations;
- Demand that public utilities assess the vulnerability of external lifelines as part of an integrated local or national vulnerability reduction program;
- Continually maintain the quality of equipment, lifelines and backup systems;
- Plan in advance, with the support of public service providers such as firefighters, paramedics, civil defense officials and transit authorities, in order to establish cooperation and coordination agreements.

As a summary, the best way to reduce the administrative/organizational vulnerability of a health facility is by preparing a quality disaster response plan. To consider priorities for hospital preparedness activities, it is important to know that each of the services provided by a health facility will be of greater or lesser importance in the management of an emergency. In an emergency situation, the importance of medical services can be rated as (1) dispensable, (2) preferable, (3) necessary, (4) very necessary and (5) indispensable (Table 4). The indispensable services require immediate logistical support, both in terms of human resources and basic supplies (water, power, food, medical supplies). If the emergency situation demands, non-critical services should be prepared to cede part or all of their personnel and even their facilities, so that the latter can be temporarily converted into additional emergency treatment areas in disaster situations. The institution must be capable of resolving any technical deficiencies that may arise, in the shortest possible time, and redirecting the necessary human and logistical resources towards the services that most urgently require them.

**Table 4- Importance of typical hospital activities in an emergency**

<b>Clinical and support services</b>	<b>Importance rating</b>
Trauma and orthopedic	5
Intensive care unit	5
Urology	5
Emergency care	5
Sterilization	5
Diagnostic imaging	5
Pharmacy	5
Nutrition	5
Transport	5
Recovery	5
Blood bank	5
Outpatient consultation/admission	4
Pediatric surgery	4
Pediatrics	4
Laboratory	4
Haemodialysis	4
Laundry services	4
Internal medicine	3
Gynecology and obstetrics	3

Administration	3
Neonatology	3
Respiratory medicine	2
Ophthalmology	2
Filing and case management	2
Dermatology	1
Psychiatry	1
Oncology	1
Oto-rhino-laryngology	1
Dental services	1
Therapy and rehabilitation	1

### ***Safe Hospital***

The objectives of having a safe hospital are:

1. Protect the lives of patients and health workers by ensuring the structural resilience of hospitals;
2. Make sure hospitals and health services are able to function in the aftermath of emergencies and disasters  
- when they are most needed;
3. Improve the risk reduction capacity of health workers and institutions, including emergency management.

A safe hospital:

- will not collapse or damaged in disasters, killing patients and staff;
- can continue to function and provide its services as a critical community facility when it is most needed; and
- is organized, with contingency plans in place and health workforce trained to keep the network operational.

The facility performance is related to structural, non-structural and administrative/ organizational vulnerability, and the vulnerability/ performance interrelation matrix must be considered as table 5.

**Table 5- Performance of a health facility considering its vulnerability**

	Rating		
<b>Vulnerability</b>	Low	Moderate	High
<b>Performance</b>	Good	Average	Poor

## TOOLS FOR HVA

Disaster planning begins with a risk-assessment and hazard-vulnerability analysis to identify the most likely threats to a particular hospital and to prevent or mitigate the effects of hazards on the hospital building and/or function (16, 17).

The hazard vulnerability analysis (HVA) method, a useful tool to evaluate risk of hazards to a hospital was invented by the Kaiser Permanente Foundation, in the US. Hospitals were asked to complete an annual HVA as a basis for emergency planning. The methods evaluate potential for incidence and response among the natural, human related, technological and hazardous material event using the hazard specific scale. The assumption is that each event occurs at the worst possible time. The risk of each event is defined as “probability x severity”. The severity also comes from the magnitude (the effects of the event on human, property and business) and the mitigation (preparedness, internal response and external response capabilities).

There are several on-line tools to assist planners with performing an HVA, including the one found at:

<http://www.calhospitalprepare.org/category/content-area/planning-topics/healthcareemergency-management/hazard-vulnerability-analysis>

Many are the models proposed in the past few years to perform an analysis of those factors that can influence the drawing of a hospital activation plan for a mass casualty incident:

Two widely used and recognized models are known with the acronyms of FEMA model for risk Measurement (19) and SMUG (20) for natural disasters: they give an esteem of how much a determined type of risk impacts upon the analysed area. The filling of these tables is a great approach to objectively determine the size of the territorial risk factors.

**Kaiser Permanente:** <https://www.calhospitalprepare.org/hazard-vulnerability-analysis>

**KP** Is a Matrix Tool which allows for the input of many different hazards. It calculates the risk for each hazard using Frequency and Severity. Severity is estimated through input on the impacts to human health, structures and business. Severity impact is also modulated Preparedness and Response (Internal and External). Apart from the calculation of risk for each hazard it calculates a multi hazard risk.

**Hospital emergency response Checklist:** to evaluate your hospital Emergency response to MCI and disasters?

<http://www.euro.who.int/en/health-topics/emergencies/disaster-preparedness-andresponse/publications/2011/hospital-emergency-response-checklist-2011>

**Hospital Safety Index** - Guide for Evaluators – PAHO 2008

**Hospital Safety Index** - [www.who.int/hac/techguidance/hospital\\_safety\\_index\\_evaluators.pdf](http://www.who.int/hac/techguidance/hospital_safety_index_evaluators.pdf) - WHO 2015

A remarkable product of this campaign was the evaluation forms for the safe hospital, the **Hospital Safety Index** (HIS) which was initially developed by the PAHO. The HIS is a rapid and low-cost tool to assess the probability of a hospital or health facility remaining operational in emergency situations. The tool has been used to evaluate hospitals in various locations such as Moldova, Iran, Sweden and Latin America.

## Annex 8: Exercises

Another key part of implementation is exercising. Exercises are a means of learning what works and what does not work as planned. They build on training by providing opportunities to practice and test:

- Policies and plans.
- Procedures and the use of equipment.
- Communication among organizations.
- Coordination of decision-making.

### Benefits of Conducting Exercises

In addition to providing practice and test opportunities, exercises serve a variety of other purposes:

- Test and evaluate plans, policies, and procedures.
- Validate that what works on paper works in practice.
- Identify planning weaknesses.
- Identify resource gaps.
- Improve interagency coordination and communication.
- Clarify the roles and responsibilities of all who play any part in the response.
- Improve individual performance by providing an opportunity for responders & others to practice their assigned duties.
- Gain staff members and representatives' recognition that the local management has taken steps to protect their safety—and gain the support of officials who will support the response effort during an emergency.

### Exercise Types

There are 2 categories of exercises: discussion-based and operations-based.

Discussion-Based	Operations-Based
<ul style="list-style-type: none"><li>• Seminars</li><li>• Workshops</li><li>• Tabletop exercises</li><li>• Games</li></ul>	<ul style="list-style-type: none"><li>• Drills</li><li>• Functional exercises</li><li>• Full-Scale exercises</li></ul>

**Discussion-Based Exercises** include seminars, workshops, tabletop exercises, and games. These types of exercises can be used to familiarize participants with, or develop new, plans, policies, agreements, and procedures. Discussion-based exercises focus on strategic, policy-oriented issues. Facilitators and/or presenters usually lead the discussion, keeping participants on track toward meeting exercise objectives.

Type	Description
<b>Seminars</b>	Seminars generally orient participants to, or provide an overview of, authorities, strategies, plans, policies, procedures, protocols, resources, concepts, and ideas. They can be valuable for entities that are developing or making major changes to existing plans or procedures. Seminars can be similarly helpful when attempting to assess or gain awareness of the capabilities of interagency or interjurisdictional operations.
<b>Workshops</b>	Although similar to seminars, workshops differ in two important aspects: participant interaction is increased, and the focus is placed on achieving or building a product. Effective workshops entail the broadest attendance by relevant stakeholders. Products produced from a workshop can include new standard operating procedures, emergency operations plans, continuity of operations plans, or mutual aid agreements. To be effective, workshops should have clearly defined objectives, products, or goals, and should focus on a specific issue.
<b>Tabletop Exercises</b>	A tabletop exercise is intended to generate discussion of various issues regarding a hypothetical, simulated emergency. Tabletops can be used to enhance general awareness, validate plans and procedures, rehearse concepts, and/or assess the types of systems needed to guide the prevention of, protection from, mitigation of, response to, and recovery from a defined incident. Generally, tabletops are aimed at facilitating conceptual understanding, identifying strengths and areas for improvement, and/or achieving changes in perceptions. During a tabletop, players are encouraged to discuss issues in depth, collaboratively examining areas of concern and solving problems. The effectiveness of a tabletop exercise is derived from the energetic involvement of participants and their assessment of recommended revisions to current policies, procedures, and plans.
<b>Games</b>	A game is a simulation of operations that often involves two or more teams, usually in a competitive environment, using rules, data, and procedures designed to depict an actual or hypothetical situation. Games explore the consequences of player decisions and actions. They are useful tools for validating plans and procedures or evaluating resource requirements. During game play, decision-making may be either slow and deliberate or rapid and more stressful, depending on the exercise design and objectives. The open, decision-based format of a game can incorporate “what if” questions that expand exercise benefits. Depending on the game’s design, the consequences of player actions can be either pre-scripted or decided dynamically. Identifying critical decision-making points is a major factor in the success of evaluating a game.

**Operations-Based Exercises** include drills, functional exercises, and full-scale exercises. These exercises can be used to validate plans, policies, agreements, and procedures; clarify roles and responsibilities; and identify resource gaps. Operations-based exercises are characterized by actual reaction to an exercise scenario, such as initiating communications or mobilizing personnel and resources.

Type	Description
<b>Drills</b>	A drill is a coordinated, supervised activity usually employed to validate a specific function or capability in a single agency or organization. Drills are commonly used to provide training on new equipment, validate procedures, or practice and maintain current skills. For example, drills may be appropriate for practicing evacuation procedures. Drills can also be used to determine if plans can be executed as designed, to assess whether more training is required, or to reinforce best practices. A drill is useful as a stand-alone tool, but a series of drills can be used to prepare several organizations to collaborate in a full-scale exercise.
<b>Functional Exercises</b>	Functional exercises are designed to validate and evaluate capabilities, multiple functions and/or sub-functions, or interdependent groups of functions. Functional exercises are typically focused on exercising plans, policies, procedures, and staff members involved in management, direction, command, and control functions. In functional exercises, events are projected through an exercise scenario with event updates that drive activity typically at the management level. A functional exercise is conducted in a realistic, real-time environment; however, movement of personnel and equipment is usually simulated.
<b>Full-Scale Exercises</b>	Full-scale exercises are typically the most complex and resource-intensive type of exercise. They involve multiple agencies, organizations, and jurisdictions and validate many facets of preparedness. Full-scale exercises often include many players operating under cooperative systems such as the Incident Command System (ICS) or Unified Command. In full-scale exercises, events are projected through an exercise scenario with event updates that drive activity at the operational level. Full-scale exercises are usually conducted in a real-time, stressful environment that is intended to mirror a real incident. Personnel and resources may be mobilized and deployed to the scene, where actions are performed as if a real incident had occurred. The full-scale exercise simulates reality by presenting complex and realistic problems that require critical thinking, rapid problem solving, and effective responses by trained personnel. The level of support needed to conduct a full-scale exercise is greater than that needed for other types of exercises. The exercise site is usually large, and site logistics require close monitoring. Safety issues, particularly regarding the use of props and special effects, must be monitored. Throughout the duration of the exercise, many activities occur simultaneously.

Exercise management program is an ongoing process of overseeing and integrating a variety of exercises over time. An effective exercise program helps organizations maximize efficiency, resources, time, and funding by ensuring that exercises are part of a coordinated, integrated approach to building, sustaining, and delivering core capabilities. This approach - called multi-year planning - begins when the DO/SMT identify and develop a set of multi-year exercise priorities informed by existing assessments, strategies, and plans.

A progressive exercise program is a series of exercises tied to a set of common program priorities. Each exercise builds on previous exercises using more sophisticated simulation techniques or requiring more preparation time, personnel, and planning.

Regardless of exercise type, each exercise within the progressive series is linked to a set of common program priorities and designed to evaluate associated capabilities.

Effective planning of exercises and integration of the necessary training will reduce the waste of limited exercise resources and serve to address known shortfalls prior to the conduct of the exercise.

### Exercise Cycle

The Exercise Cycle is the common planning methodology provided for use with all exercise types and scopes. Regardless of scope or scale of an exercise, the exercise cycle will include exercise program management, design and development, conduct, evaluation, and improvement planning.

Exercise program management is the coordination of multiple exercises. Exercise project management is the coordination of a single exercise.

Project managers are responsible for:

- Design and development (Design and Development)
- Execution of a specific exercise (Conduct)
- Evaluation (Evaluation)
- Planning improvements (Improvement Planning)

Good project management involves:

- Developing a project management timeline
- Establishing project milestones
- Identifying the exercise planning team
- Scheduling planning meetings



The different types of exercises that may be included in a multi-year plan are described below:

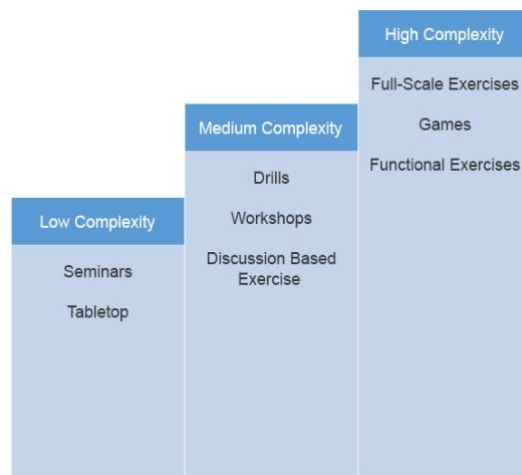
**Discussion-based Exercises** provide a forum for discussing or developing plans, agreements, training and procedures. They are generally less complicated than operations-based types. Typically, discussion-based exercises focus on strategic, policy-oriented issues and they do not involve deployment of resources.

The four types include seminars, workshops, tabletop exercises (TTX's), and games. A facilitator or a presenter usually leads the discussions in these exercises, helping to keep participants on track and ensuring that exercise objectives are met.

**Operations-based Exercises** involve deployment of resources and personnel. They are more complex than discussion-based exercises. Focusing on action-oriented activities, operations-based exercises will be used to validate plans, policies, agreements, and procedures, clarify roles and responsibilities, and identify resource gaps and improvement opportunities. These types of exercises are characterized by actual implementation in reaction to an exercise scenario.

There are various types of exercises that can be employed to prepare for real-world scenarios and emergencies. Exercises can be low, medium, or high complexity.





## Evaluation Planning

Evaluation is the link between exercise and improvement planning. Through evaluation, capabilities necessary to accomplish a mission or function or meet an objective are assessed, based on performance.

Effective exercise evaluation involves:

- Planning for exercise evaluation
- Observing the exercise and collecting exercise data during conduct
- Analyzing collected data to identify strengths and areas for improvement
- Reporting exercise outcomes in a draft After-Action Report (AAR)

## Evaluation Team Responsibilities

In the early stages of the exercise planning process, the exercise planning team leader should appoint a lead evaluator to manage the evaluation process. The **lead evaluator** participates as a member of the planning team.

Together, the planning team and lead evaluator should determine which tools and documentation are needed to support the evaluation team. Data collection methods are determined by the lead evaluator.

## Lead Evaluator

An effective lead evaluator will present the following skills:

- Management skills
- Knowledge and analytical skills
- Effective communication skills
- Mission area/core capability familiarity

Responsibilities:

- Oversees evaluation process and planning
- Evaluation Plan development using:
  - o Exercise-specific information
  - o Plans, policies, and procedures
  - o Determining evaluator assignments
  - o Developing instructions and Evaluation tools (EEGs)

## Evaluation Team Responsibilities

Evaluation Team Members should:

- Be familiar with the mission areas, core capabilities, plans, policies, and procedures to be examined during the exercise
- Determine the structure of the evaluation team
- Determine the supporting tools and documentation
- Conduct a pre-exercise C/E Briefing
- Recruit, train, and assign additional evaluators

## Evaluation Plan Development Tasks

The Evaluation Plan (EvalPlan), developed under the direction of the lead evaluator, is the comprehensive plan exercise evaluators will use to observe, collect data, and evaluate player performance. The EvalPlan is the Evaluator portion of the Controller/Evaluator (C/E) Handbook.

Evaluation Plan development tasks:

- Define evaluation requirements
- Prepare a plan for evaluating the exercise
- Select or develop evaluation forms
- Finalize the evaluation plan

## The Evaluation Plan (EvalPlan)

The evaluation plan shall include:

<b>Exercise-specific information</b> <ul style="list-style-type: none"><li>- Scenario or summary of the scenario</li><li>- Functional groups for the exercise</li><li>- Schedule of events (and evaluation schedule)</li></ul>	<b>Evaluator requirements and assignment</b> <ul style="list-style-type: none"><li>- Number of evaluators needed</li><li>- Subject matter expertise or background required</li><li>- Functional group or discipline that each evaluator will observe</li></ul>
<b>Plans, policies, procedures, and agreements</b> <ul style="list-style-type: none"><li>- Jurisdiction's applicable plans, policies, procedures, and agreements that one would expect to discuss during discussion-based exercises and implemented/utilized during an operations-based exercise</li></ul>	<b>Evaluator instructions</b> <ul style="list-style-type: none"><li>- What evaluators should do prior to arrival<ul style="list-style-type: none"><li>o Review exercise material</li><li>o Review jurisdictional plans and procedures</li><li>o Review the evaluation plan and process</li></ul></li><li>- Roles and responsibilities during conduct</li><li>- Required deliverables</li></ul>
<b>Evaluation tools</b> <ul style="list-style-type: none"><li>- Data collection instruments</li><li>- Jurisdiction-specific Exercise Evaluation Guides (EEGs)</li></ul>	

## Exercise Evaluation Guide (EEG) Development

**Exercise Evaluation Guides (EEGs)** provide a consistent tool to guide exercise observation and data collection.

Aligned to exercise objectives and core capabilities, EEGs list capability targets and critical tasks.

**EEGs accomplish several goals:**

- Streamline data collection
- Enable thorough assessments of the participant organizations' capability targets
- Support development of the After-Action Report (AAR)
- Provide a consistent process for assessing preparedness through exercises
- Help organizations map exercise results to exercise objectives, core capabilities, capability targets, and critical tasks for further analysis and assessment

## EEG Format

EEGs are designed to document who, what, when, where, and how tasks were completed.

They document the following evaluation requirements for exercise evaluators:

- **Core capabilities:** Critical elements needed to achieve a specific mission area
- **Capability target(s):** Performance thresholds for each core capability. Typically written as quantitative or qualitative statements.
- **Critical Tasks:** Elements required to perform a core capability and describe how the target will be met. Generally, they include activities, resources, and responsibilities required to fulfill capability targets.
- **Performance ratings:** Description of performance against target levels. Includes target ratings and core capability ratings