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*International legal obligations related to Prevention, Preparedness, Response and Recovery from CBRN events and status of their implementation in Italy (CBRN-ITALY)*

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(a) CBRN emergency management cycle: working  
definitions

Task 1.2

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### *About this publication*

This paper is the outcome of research carried out in the scope of the project CBRN-ITALY on International legal obligations related to Prevention, Preparedness, Response and Recovery from CBRN events and status of their implementation in Italy.

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The project aims at developing a common understanding of CBRN events and of actors involved (stage 1), at mapping obligations stemming from the wide range of applicable norms of International Law and European Union Law (stage 2), at exploring the implementation of applicable international obligations in Italy (stage 3) and at providing recommendations to address the gaps in the International, European and Italian legal and policy frameworks in all phases of the CBRN emergency management cycle (stage 4). The research activities are thus structured around four stages: 1. Definitions, 2. Mapping International and Regional Obligations, 3. Assessing the situation in Italy, 4. Providing recommendations.

For further information on the PRIN Project CBRN-ITALY, please visit:

<http://www.cbrn-italy.it/en>

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## Abstract

This paper aims at proposing a set of working definitions related to the “CBRN emergency management cycle” and of the different phases relevant to CBRN events, including mitigation/prevention, preparedness, response and recovery. In the CBRN domain, the phases may slightly differ from other emergencies because of the complex activities and related capabilities involved, such as for instance detection of CBRN substances in the pre-emergency phase, or quarantine, isolation and decontamination in the acute response phase. It seems thus important to propose a harmonised understanding of what constitutes prevention, preparedness, response and recovery, and at suggesting some of the key capabilities that refer to each single phase in the CBRN context.

This “working definitions” of the phases of the CBRN emergency management cycle will constitute the analytical framework that will guide the research on the subsequent stages of the PRIN project. Indeed, the outcomes of this task will inform research activities to be carried out under Stage 2 (i.e. the summary report of international and legal obligations will be structured around the different phases of a CBRN emergency management cycle), as well as under Stages 3 (i.e. the empirical research on the Italian context) and 4 (i.e. the Recommendations and Guidelines will be structured around the four phases).

This paper is the first of the two outcomes of research carried out in task 1.2 on the “CBRN emergency management cycle”. For further details on the background considerations behind the use of the disaster “cycle” and “phases”, for further details on the origin of these concepts in social science literature, and on the relevance of these concepts in international law, as well as for a discussion on the types of CBRN emergency management cycles available in policy documents adopted at the international and regional levels, see the part (b) of task 1.2, i.e. the paper “b) Background considerations”.

## 1. Introduction

This paper aims at proposing a set of working definitions related to the “CBRN emergency management cycle” and of the different phases relevant to CBRN events. In the CBRN domain, the phases may differ from other emergencies because of the complex activities and related capabilities involved, such as for instance detection of CBRN substances in the pre-emergency phase, or quarantine, isolation and decontamination in the acute response phase. It seems thus important to propose a harmonised understanding of what constitutes prevention, preparedness, response and recovery, and at suggesting some of the key capabilities that refer to each single phase in the CBRN context.

It is also important to agree on common terminology since the CBRN emergency management cycle and its phases will constitute the analytical framework that will guide the research on the subsequent stages of the PRIN project. Indeed, the outcomes of this task will inform research activities to be carried out under Stage 2 (i.e. the summary report of international and legal obligations will be structured around the different phases of a CBRN emergency management cycle), as well as under Stages 3 (i.e. the empirical research on the Italian context) and 4 (i.e. the Recommendations and Guidelines will be structured around the four phases).

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## 2. Working definitions

### 2.1 Why emergency “cycle” and phases”?<sup>1</sup>

Nowadays, both academics and practitioners in the field of emergency management tend to assume that societal responses to disasters can be conceived as structured around a set of inter-related phases, from risk mitigation to preparedness, response and recovery.<sup>2</sup> The disaster cycle has been described as “theoretical framework that has been developed by disaster practitioners

<sup>1</sup> The reasons behind the use of the concepts of emergency cycle and phases in the PRIN project are described more in detail in the second outcome of task 1.2, i.e. the working paper on “(b) *CBRN emergency management cycle: Background considerations on the concept of disaster cycle and phases*”.

<sup>2</sup> See “Background considerations”, section 2

and researchers as they attempt to explain cyclical patterns and processes that disaster events follow”.<sup>3</sup>

Legal scholarship has also started to devote some attention to the conceptualisation of disaster cycles and phases and to analysing their relevance to international law, i.e. as a way to organise the multitude of issues that compose international disaster law and to suggest the importance of considering linkages between them.<sup>4</sup> Furthermore, at the international level relevant conventions applicable to specific disaster types or to specific disaster-related issues, as well as some policy documents and soft law instruments in this field are increasingly using the “disaster cycle” framework as a way of structuring applicable obligations.<sup>5</sup> The International Law Commission Draft Articles on the Protection of Persons in the Event of Disasters and the Sendai Framework on Disaster Risk Reduction, for instance, make use of the disaster cycle conceived as a continuum of actions pertaining to a set of inter-related phases.

It has been pointed out, however, that the divisions into phases may appear arbitrary sometimes and that the use of this analytical framework may come at the expenses of losing the complexities of disaster events, and this is also true with reference to the many legal issues raised by these situations. One of the ways to maintain this complexity without renouncing at the use of guiding concepts such as cycles and phases is to discuss the applicability of each phase in the context of a specific emergency. The aim of the next sections is exactly to propose some working definitions of emergency cycle and phases that are particularly relevant in the CBRN context.

## 2.2 CBRN emergency cycle and CBRN security governance

Some working definitions of key terms relevant to the CBRN emergency management cycle are here proposed that may be useful for research to be carried out in the next stages of the PRIN research project. With reference to this research project, the following working definitions are proposed.

**“CBRN event”** is broadly defined as the intentional, accidental or naturally occurring release or spread of chemical, biological or radio-nuclear substances, therefore including both malicious attacks and accidental and naturally occurring events (for a more complete definition and for further details on CBRN events and actors, see Task 1.1 on Definitions);

<sup>3</sup> M. Nthakomwa, “Cycles of Disasters”, in K. B. Penuel and M. Statler, *Encyclopedia of Disaster Relief* (2nd Vol. SAGE 2011) p. 96

<sup>4</sup> See “Background considerations”, section 3

<sup>5</sup> Ibid.

**“CBRN emergency management”** refers to “the identification, planning and application of measures for mitigating the risk, preparing for, responding to and recovering from a CBRN event”;

**“CBRN emergency management cycle”** is the framework used for mapping international obligations related to the management of a CBRN event according to the four overarching phases of mitigation, preparedness, response and recovery. The four main phases are inter-related and have a functional, rather than temporal, utility as they describe the actions and capabilities required to pursue a determined goal.<sup>6</sup>

With particular reference to CBRN malicious attacks, it is worth mentioning also the concept of **“CBRN security governance”**, defined by the United Nations Interregional Crime and Justice Research Institute (UNICRI) as the “framework aimed at ensuring that all disciplines and organizations concerned with CBRN risk mitigation act as an integrated unit”.<sup>7</sup> UNICRI has developed a set of indicators to assess the level of CBRN security governance at the domestic level, as follows:

- Interagency coordination (including the establishment of CBRN focal points and of a national CBRN team, and the adoption of a CBRN strategy that defines clear responsibilities)
- Operations communications (aimed at information sharing among CBRN focal points)
- Collaboration with other stakeholders, including industry, academia, civil society, media
- Regional and International cooperation (including by establishing regional agreements regarding incident management and other relevant matters)
- Planning (this indicator includes conducting a CBRN risk assessment at least annually and adopting emergency response plans and a national CBRN action plan with clear benchmarks)
- National and international standardisation (common terminology and data definitions)

For the four main phases around which the “CBRN emergency management cycle” is structured, we adopt the definitions provided by the DRR updated terminologies and we add specific elements relevant to the CBRN context, as defined by policy documents or initiatives

<sup>6</sup> For further details on the characteristics of the disaster phases, see “Background considerations”, section 2

<sup>7</sup> See [http://www.unicri.it/topics/cbrn/security\\_governance/](http://www.unicri.it/topics/cbrn/security_governance/)

<sup>8</sup> Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction, 1 December 2016, A/71/644, section V on Recommendations of the open-ended intergovernmental expert working group on terminology relating to disaster risk reduction (DRR updated terminology). The recommendations were endorsed by the UN General Assembly Resolution 71/276 (2016) A/RES/71/276.

adopted at the international and regional level. It is important to underline, however, that armed conflicts, which are of particular relevance in the CBRN context, are explicitly set out from the scope of the Sendai Framework.<sup>9</sup>

### 2.3 Mitigation and prevention

The phase of “**mitigation**” is defined as “the lessening or minimizing of the adverse impacts of a hazardous event”.<sup>10</sup> Examples of mitigation measures aiming at minimising adverse impacts include “engineering techniques and hazard resistant construction as well as improved environmental and social policies and public awareness”.<sup>11</sup>

Similar to mitigation is the concept of **prevention**, defined as “Activities and measures to avoid existing and new disaster risks”.<sup>12</sup> The term mitigation is preferred here as it acknowledges the existence of some residual risk, that cannot be completely avoided.

As per the reference to “hazardous events”, according to the DRR updated terminology a “**hazard**” is “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”.<sup>13</sup> Hazards may be natural, anthropogenic, or socio-natural; single, sequential or combined; biological, environmental, geological, hydrometeorological and technological. Furthermore, the DRR terminology clarifies that “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”.

With reference to the CBRN context, particular relevant are “anthropogenic hazards”, i.e. those “induced entirely or predominantly by human activities and choices” (e.g. the use of CBRN weapons, industrial accidents, acts of terrorism), and “socio-natural hazards”, i.e. those “associated with a combination of natural and anthropogenic factors” (e.g. epidemic outbreaks), as defined by the DRR updated terminology.

Mitigation and prevention measures to lessen the risk of these hazards may include:

<sup>9</sup> As of 20 April 2020 (date of the submission of this working paper), the use of the concept of “disaster phases” with reference to the macro-area which will discuss CBRN weapons use in armed conflict in stage 2 (macro area 1, which is particularly relevant in the CBRN context) is thus still to be confirmed by the Research Units.

<sup>10</sup> DRR updated terminology, p. 20

<sup>11</sup> Ibid.

<sup>12</sup> Ibid. p. 21

<sup>13</sup> Ibid. p. 19



- For CBRN malicious events: non-proliferation, counterterrorism, and intelligence gathering activities aimed at reducing the risk of CBRN malicious events (including, e.g. adopting measures to prevent illicit trafficking in nuclear, chemical or biological weapons, their means of delivery, and related materials, enhancing transport security, enhancing information sharing and coordination);
- For all types of events: CBRN risk and vulnerability assessment, as the identification of risks, vulnerabilities and exposure patterns in a specific community;
- For all types of events: the identification of gaps emerging in all policy areas relevant to CBRN protection, such as human health, animal health, industrial safety and security, environmental protection, critical infrastructures protection, and so on;
- For all types of events: enhancing legal and international instruments devoted to these issues and building response capacity and preparedness.

## 2.4 Preparedness

The second phase is “**preparedness**” that refers to “the knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters”.<sup>14</sup> Interestingly, the DRR terminology further clarifies that preparedness is linked with prevention as it is “based on a sound analysis of disaster risks” and that it has “good linkages with early warning systems, and includes such activities as contingency planning, the stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities”.

It is interesting to note that all the elements mentioned in the DRR terminology are particularly relevant to the CBRN context too, including the following elements:

- A **CBRN preparedness plan** (“contingency planning”) that assesses the main risks and related vulnerabilities and exposures patterns, and clarifies the responsibilities, procedures and equipment necessary to enable timely and adequate emergency response, as well as it identifies the training and coordination arrangements as well as the public information and early warning mechanisms in place.
- Specific **procedures and equipment** may be required during a CBRN event, considering the specificities of the material potentially involved, including: detection of the substance,

<sup>14</sup> Ibid. p. 21

decontamination, isolation, quarantine; personal protective equipment (PPE) and specialised medical treatment;

- Previous research has pointed out that also in the CBRN domain there are serious gaps in the **coordination arrangements** both at the domestic and international levels,<sup>15</sup> as well as in **public communication** strategies to be adopted in case of an emergency.<sup>16</sup>
- An **early warning system** is defined as “An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events”.<sup>17</sup> It is interesting to note that the Sendai Framework puts emphasis on Multi-Hazard Early Warning Systems, but it is not clear to what extent existing early warning systems targeted to specific hazards are currently being integrated in one mechanism that covers them all, and to what extent MH-EWS would increase the efficiency of emergency warning.

## 2.5 Response

The third phase is “**response**”, which refers to “actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected”.<sup>18</sup>

In the CBRN context, response should consider specific activities and measures, such as:

- The four key areas within CBRN response identified by NATO Guidelines for First Responders:
  - (1) Information gathering, situation assessment and dissemination (e.g. detection of hazardous substances, information sharing with emergency control rooms and emergency warnings)
  - (2) Scene management (evacuation, control access to and from the incident scene)
  - (3) Saving and protecting life (including decontamination and medical treatment)
  - (4) Additional specialist support (including psychological support for both victims and first responders);

<sup>15</sup> See <https://www.santannapisa.it/sites/default/files/u39/mapping-report.pdf>

<sup>16</sup> See e.g. J. Gooweloos et al, Psychosocial care to affected citizens and communities in case of CBRN incidents: A systematic review (2014) 72 Environment International 46

<sup>17</sup> Ibid. p. 17

<sup>18</sup> DRR updated terminology (note 16) p. 22

- Response activities can involve coordination of different actors, including law enforcement, emergency rescue and medical services, units of armed forces, as well as collaboration with other policy sectors;
- Especially for infectious diseases, additional public health measures may be required such as isolation (i.e., to isolate a person who has a disease, in order to prevent that person from spreading the disease) and quarantine (i.e., the isolation or restriction of free movement imposed to people exposed to a contagious disease to prevent the spread).

## 2.6 Recovery

The fourth phase is “**recovery**”, which refers to “the restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster affected community or society, aligning with the principles of sustainable development and “build back better”, to avoid or reduce future disaster risk”.<sup>19</sup>

In the CBRN context, recovery measures may comprise:

- Providing adequate and long-term support to victims and first responders, having in mind the specificities of CBRN accidents or attacks;
- Contaminated waste management and decontamination of buildings and other areas;
- CBRN forensic investigations, especially in case of a malicious attack.

<sup>19</sup> Ibid. p. 21