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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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(b) CBRN emergency management cycle: background considerations

Task 1.2

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Table of contents

Abstract

This working paper aims at discussing the concepts of 'disaster cycle' and 'disaster phases', which constitute the analytical framework that will guide the research on the subsequent stages of the PRIN project. It is the second outcome of research carried out in Task 1.2 on the "CBRN emergency management cycle" and provides some background considerations that should be read in conjunction with the first paper (a) that proposes a set of working definitions for the "CBRN emergency management cycle" and phases within the cycle.

The paper is organised in four main sections. After some introductory remarks, in the second section it discusses the origins of the concept of disaster management phases and the idea of the continuum between them, by analysing the development of this concept in the social science literature as well as in legal instruments as well as policy documents and soft law instruments adopted at the international level. In the third section, the paper investigates how international, regional and national policy frameworks on CBRN events address the specificities of a CBRN emergency management cycle. Some conclusive remarks are finally proposed.

1. Introduction

This working paper aims at discussing the concepts of 'disaster cycle' and 'disaster phases', which constitute the analytical framework that will guide the research on the subsequent stages of the PRIN project. It is the second outcome of research carried out in Task 1.2 on the "CBRN emergency management cycle" and provides some background considerations that should be read in conjunction with the first paper (a) that proposes a set of working definitions for the "CBRN emergency management cycle" and phases within the cycle.

The paper is organised in four main sections. After some introductory remarks, in the second section it discusses the origins of the concept of disaster management phases and the idea of the continuum between them, by analysing the development of this concept in the social science literature as well as in legal instruments as well as policy documents and soft law instruments adopted at the international level. In the third section, the paper investigates how international, regional and national policy frameworks on CBRN events address the specificities of a CBRN emergency management cycle. Some conclusive remarks are finally proposed.

2. The concepts of "disaster cycle" and "disaster phases"

2.1 The origin of the concepts in social science research

The idea that societal responses to overwhelming disasters can be conceived as structured around phases is common in social science research at least since the early years of the XX century, with the first studies describing disaster management activities in a linear way. According to Coetzee and Van Niekerk, Prince's work in 1920 was the first to establish that societal response and change following a disaster could be delineated according to a number of phases, starting from the emergency period, characterised by the confusion and general panic within the population affected by a disaster, followed by a transition period where organised groups, such as the army, quickly respond to the impact of a disaster and start to provide rescue and relief services, and terminating with the rehabilitation phase.[1] Early efforts towards the conceptualisation of disaster phases include also Julliard's[2] and Carr's, which, according to Neal,

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[1] C. Coetzee and D. Van Niekerk, "Tracking the evolution of the disaster management cycle: A general system theory approach" (2012) 4(1) *Jàmbá: Journal of Disaster Risk Studies*, available at http://dx.doi.org/10.4102/jamba.v4i1.54

[2] L. Julliard, 'Disaster and the Sequence-Pattern Concept of Social Change' (1932) 38(2) *American Journal of Sociology*

was the first scholar who more explicitly described the disaster phases as the direct product of social change.3 Other scholars who contributed to the conceptualisation of periods of disasters include Powell in 1954 and Chapman in 1962, who identified six phases, including warning, threat, impact, inventory, rescue and remedy. A few years later, in 1968, Stoddard suggested instead the existence of three over-arching phases, including pre-emergency, emergency and post-emergency, each of them containing sub-phases or activities. For instance, the pre-emergency phase includes the warning, threat and evacuation, dislocation and relocation as key activities, while in the post-emergency phase short and long-term rehabilitation activities are considered. It is probably exactly when the pre-emergency phase was introduced that scholars started to describe disaster management activities as a "cycle" rather than a linear process.

At the policy level, the United States National Governors' Association introduced the phases of mitigation, preparedness, response and recovery in its 1979 report, which has deeply influenced the state of disaster management in the US and abroad.4 According to the report, an important component of the comprehensive emergency management (CEM) are exactly the four phases of disaster activity, i.e. mitigation, preparedness, response and recovery. The report warned, however, that the relationships between them were not adequately understood. The use of these four phases now represents a cornerstone in disaster-management practice throughout the world.

Nowadays, both academics and practitioners tend to assume that disaster phases exist and that these are inter-related to each other, but some important drawbacks have been pointed out, in particular by Neal.5 These include the fact that sometimes the division may appear arbitrary, that some activities are difficult to distinguish and that different emergencies call for different cycles; that phases are useful only if they serve to distinguish the major functional activities of a period in relation to a disaster; or that within a society some groups may be in the emergency response phase while others may have already entered in the recovery phase, with regards to e.g. sheltering and housing. In any case, according to Neal, disaster phases remain important research tools, scientific constructs to order data. Phases may thus be useful provided that they are conceived as mutually inclusive (i.e. overlaps among them should be acknowledged) and multidimensional (i.e. depend on the unit of analysis), reflecting social rather than objective time,

3 D. M. Neal, "Reconsidering the Phases of Disaster" (1997) 15(2) *International Journal of Mass Emergencies and Disasters*, p. 241, available at http://www.ijmed.org/articles/335/download/

4 National Governors' Association, Emergency Preparedness Project. State comprehensive emergency management (1979)

5 Ibid.

and including multiple perceptions of the different groups involved. It is also beneficial to clarify that a functional approach should be adopted instead of temporal (i.e. a phase refers to specific functions, rather than to a pre-determined point in time) and that different units of analysis may experience different perceptions of the activities that occur in a specific moment.

More recently, Nthakomwa has described disaster cycles as "theoretical frameworks that have been developed by disaster practitioners and researchers as they attempt to explain cyclical patterns and processes that disaster events follow"[6] and suggested that these are primarily composed of the four phases of mitigation, preparedness, response and recovery. According to Nthakomwa, within disaster cycles the structuring of phases, and of the related specific skills, "has the potential to guide strategic plans and operational activities", as well as the allocation of adequate budget and resources. Nthakomwa therefore points out that "[h]aving a breakdown of these processes can be productive in managing disasters", while acknowledging that the reality of disasters is much more complex than the picture suggested by disaster cycles.

2.2 The concepts of disaster cycle and phases in international law

The concepts of disaster phases and disaster cycle have been also integrated in relevant conventions as well as in policy documents and soft law instruments adopted at the international level. These documents often establish specific and autonomous obligations and standards that are relevant to a specific phase of the disaster cycle.

Looking at *prevention-relevant obligations and standards*, these had first developed and consolidated in other areas, especially within International Environmental Law (IEL) for those hazardous activities that can have transboundary implications. Since the late 1980s, however, some interest emerged on the mitigation of the risk of natural disasters and on the related preparedness measures, i.e. what in contemporary times is called Disaster Risk Reduction (DRR).[7] The recently adopted Sendai Framework calls for an approach that is multi-hazard (i.e. takes into account the interaction of natural and man-made hazards), people-centred (i.e. takes into account the needs and rights of the affected persons) and preventive (i.e. aims at completely

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[6] M. Nthakomwa, "Cycles of Disasters", in K. B. Penuel and M. Statler, *Encyclopedia of Disaster Relief* (2nd Vol. SAGE 2011) p. 96

[7] See UN World Conference on Natural Disaster Reduction, Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation, and Plan for Action (1994) UN Doc A/CONF.172/9; Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (2006) UN Doc A/CONF.206/6; Sendai Framework for Disaster Risk Reduction 2015-2030 (2015) UN Doc A/CONF.224/L.2.

avoiding the potential adverse impacts of a disaster through action taken in advance). Among the four priorities for actions around which the framework is structured, priority 4 deals with "Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction" and is the part where the interplay between the pre-disaster, response, and post-disaster phases is more explicitly addressed.

The interest of the international community in enhancing legal clarity in the field of protection against disasters has also focused on *preparedness* towards emergency *response*. For instance, in 2000 the International Federation of the Red Cross (IFRC) World Disasters Report urged further research and dialogue in the area of international law and disaster response.[8] Examples of obligations and standards for international disaster response developed at the international level included the guidelines for the domestic facilitation and regulation of international disaster relief[9] and on strengthening the effectiveness and co-ordination of international assistance devoted to urban search and rescue.[10] Some treaties were also adopted establishing a temporary admission regime for specific goods and guidelines regulating the status of relief personnel and the standards governing international assistance operations.[11]

Looking at whether and to what extent other international instruments acknowledge the existence of and the interplay among disaster phases, it is worth mentioning the International Law Commission (ILC) Draft Articles on the Protection of Persons in the event of Disasters, which provide definitions of key terms and aim at guiding the actions of States and other relevant

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[8] IFRC, 'Towards an international disaster response law' (IFRC 2000). Response was also the focus of the 2007 IFRC Desk Study, IFRC, 'Law and Legal issues in International Disaster Response: a desk study' (IFRC 2007)

<http://www.ifrc.org/PageFiles/125639/113600-idrl-deskstudy-en.pdf>

[9] International Conference of the Red Cross and Red Crescent, 'Resolution 4 on Adoption of the Guidelines for the

Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance' (2007) 30IC/07/R4 <http://www.ifrc.org/PageFiles/139513/resolution4-en.pdf>

[10] UNGA Resolution 57/150 (16 December 2002) A/RES/57/150

[11] For instance, the Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations (Tampere Convention) aims at waiving the regulatory barriers that impede the use of telecommunication resources that are essential component of disaster relief; the Convention on Temporary Admission (Istanbul Convention) aims at simplifying and harmonising temporary admission procedures of goods of prime necessity and certain equipment, that are specified in an Annex to the Convention; There are also more specific provisions on specialised personnel who may intervene in case of nuclear accidents.

actors.[12] In the preamble, reference is made to "the fundamental value of solidarity in international relations and the importance of strengthening international cooperation in respect of *all phases of a disaster*" (emphasis added), and the commentary clarifies that this paragraph "recognizes the reach of the articles into each component phase of the entire disaster cycle".[13] The commentary to Article 1 on Scope emphasises that

> "As suggested by the phrase "in the event of" in the title of the topic, the scope of the draft articles *ratione temporis* is primarily focused on the immediate post-disaster response and early recovery phase, including the post-disaster reconstruction phase. Nonetheless, as confirmed by draft article 2, the pre-disaster phase falls within the scope of the draft articles, and is the subject of draft article 9, which deals with disaster risk reduction and disaster prevention and mitigation activities"[14]

It may thus be assumed that the Draft Articles are relevant to all phases of the disaster management cycle and take this way of structuring disaster management activities for granted. Throughout the commentary, reference is made to a broad "pre-disaster phase", which includes both risk reduction and preparedness activities (as outlined in Draft Article 9), and to the "response phase" (as outlined in Draft Article 8) and "recovery phase".

The more detailed definitions of the disaster phases at the international level are the ones released in 2009[15] and 2016[16] by the United Nations International Strategy on Disaster Reduction (UNISDR), now United Nations Office for Disaster Risk Reduction (UNDRR). The functional approach adopted by the UNDRR terminology refers to the fact that activities are included in one specific phase on the basis of their function, rather than depending on when in time these activities occur. For instance, the response phase includes "Actions taken *directly before, during or immediately after* a disaster in order to save lives, reduce health impacts, ensure public safety and

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[12] ILC, 'Draft Articles on the Protection of Persons in Event of Disasters' (2016) II(2) *Yearbook of the International Law Commission.*

[13] Ibid., commentary to the Preamble, para 4

[14] Ibid. commentary to Draft Article 1, para 4

[15] https://www.preventionweb.net/files/7817_UNISDRTerminologyEnglish.pdf

[16] 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.

meet the basic subsistence needs of the people affected" (emphasis added). The terminology further emphasises the link with the pre-disaster phase by clarifying that

> "[d]isaster response is predominantly focused on immediate and short-term needs and is sometimes called disaster relief. Effective, efficient and timely response relies on disaster risk-informed preparedness measures, including the development of the response capacities of individuals, communities, organizations, countries and the international community".[17]

Interestingly, the terminology also acknowledges the difficulties in clarifying the interplay between response and recovery, by pointing out that "[t]he division between the response stage and the subsequent recovery stage is not clear-cut. Some response actions, such as the supply of temporary housing and water supplies, may extend well into the recovery stage".

Turning our attention to whether scholars have discussed the relevance of disaster phases to international law, there is very limited attention devoted to this topic. The most detailed analysis is provided by Farber, who describes the disaster cycle as "a framework for organising national and international emergency response".[18] In the author's view, the use of phases may also serve the aim of emphasising the importance of actions taken before and after a disaster in addition to response, which remains the phase that attracts most of the attention. According to Farber, "each stage of the disaster cycle offers opportunities to reduce the social costs of disasters" and no phase can be considered in isolation.[19] For instance, the adequateness of emergency response depends on the capabilities developed in the preparedness phase, while the measures adopted in the recovery phase may be conceived also as risk mitigation measures. Depending on the stage of the disaster cycle, however, the role of the international community and of the other actors involved may change. Farber identifies the four phases of mitigation, emergency response, insurance/liability compensation, and rebuilding, and discusses how international law can contribute to each of these phases. For instance, in the mitigation phase international law provides rules to address risks deriving from dangerous technologies and recognises a duty to engage in adaptation to extreme weather events; in the response phase, it enshrines rules to cooperate in case of accidents and provides guidelines on the standards for

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[17] Ibid. p. 22

[18] D. A. Farber, "International Law and the Disaster Cycle", in David D Caron, Michael J Kelly and Anastasia Telesetsky (eds), The International Law of Disaster Relief (Cambridge University Press 2014)

[19] D.A. Farber, 'Legal Scholarship, the Disaster Cycle, and the Fukushima Accident' (2012) 23(3) Duke Environmental Law and Policy Forum 3

emergency response; in the post-disaster phase, it may provide mechanisms to support compensation, rebuilding and resettlement. It is interesting however to note that Farber does not point out explicitly the phase of disaster preparedness. To conclude, Farber argues that "the disaster cycle provides a way of organising the multitude of issues that compose disaster law" and that "each stage can only be properly designed in the context of the other stages".[20] It is suggested to put particular attention to the last part of the cycle that links recovery with mitigation, in the following terms: "the disaster cycle is illuminating simply because the loop is closed. […] each disaster also creates the opportunity for learning about strategies for disaster risk management by individuals, nations, and the international community".[21]

Other scholars who have briefly touched upon the use of disaster phases and their relevance for international law include Bartolini and Aronsson-Storrier. Bartolini recently discussed the emerging body of international disaster law as including "rules and policies aiming to comprehensively address the legal and operational issues pertaining to the *cycles of disasters – commonly distinguished into the phases of mitigation, preparedness, relief and recovery*" (emphasis added).[22] The author clarifies that these terms "are usually used by practitioners and researchers to identify the cyclical processes and patterns that disaster events follow" without a clear agreement on the exact content of the different components.[23] In her analysis of the fundamental values in the development of DRR, Aronsson-Storrier suggests that the division of DRR measures into "phases" is not completely without value, but also warns that "the 'clarity' provided by the phases comes at a cost of failing to account for the complexity of the numerous simultaneous processes which contribute to, and address, disaster risk".[24]

To sum up, at the international level the disaster cycle is currently used in international conventions, policy documents and soft law instruments that consider "disaster management" as a continuum of actions pertaining to a set of inter-related phases. Legal scholarship has devoted some attention to the conceptualisation of such phases and to analysing their relevance to

[20] Farber (n18) p. 19

[21] Ibid. p. 20

[22] G. Bartolini, "A taxonomy of disasters in International law", in F. Zorzi Giustiniani et al, Routledge Handbook of Human Rights and Disasters (Routledge 2018), p.

[23] Ibid. note 26

[24] M. Aronsson-Storrier, "Exploring the foundations: the principles of prevention, mitigation, and preparedness in international law", in K. L. H. Samuel, M. Aronsson-Storrier, and K. Nakjavani Bookmiller (eds.), *The Cambridge Handbook of Disaster Risk Reduction and International Law* (CUP 2019), p. 57

international law. Phases may serve the aim of emphasising the importance of the pre- and post-disaster periods but should not come at the expenses of acknowledging the complexities of disasters. In order to maintain this complexity while adopting the disaster cycle, it is important to consider that different disasters may need different actions within each single phase. The focus of the next section will thus be on the phases (understood as functions, capabilities, actions that are necessary to pursue a determined aim) relevant to a CBRN emergency, as identified by policy documents and guidelines adopted at the international and domestic levels.

3. Phases of the CBRN emergency management cycle

There are some examples CBRN emergency management cycle and related phases in policy documents and guidelines adopted at the international level. In the following paragraphs, the approach adopted within the UN, NATO and the EU are considered, and some examples at the domestic level are also presented.

3.1 The United Nations approach

The UN Office of Counter-Terrorism, and more specifically the Counter-Terrorism Implementation Task Force (CTITF) Working Group on Preventing and Responding to Weapons of Mass Destruction Attacks, has offered some considerations on the different phases that compose the CBRN emergency management cycle in its report released in 2011 and updated in 2017. The focus of the report is on prevention, preparedness and response mechanisms related to inter—agency interoperability and communication coordination in case of a chemical or biological attack.[25] It is interesting to note that in the 2017 report two diagrams have been included pointing out the role of different agencies within the UN system in the response phase of a Biological and Chemical attacks, as follows:

[25] UN Office of Counter-Terrorism - CTITF, "Ensuring Effective Interagency Interoperability and Coordinated Communication in Case of Chemical and/or Biological Attacks" (UN 2017); UN Office of Counter-Terrorism - CTITF, "Interagency Coordination in the Event of a Terrorist Attack Using Chemical or Biological Weapons or Materials" (UN 2011).
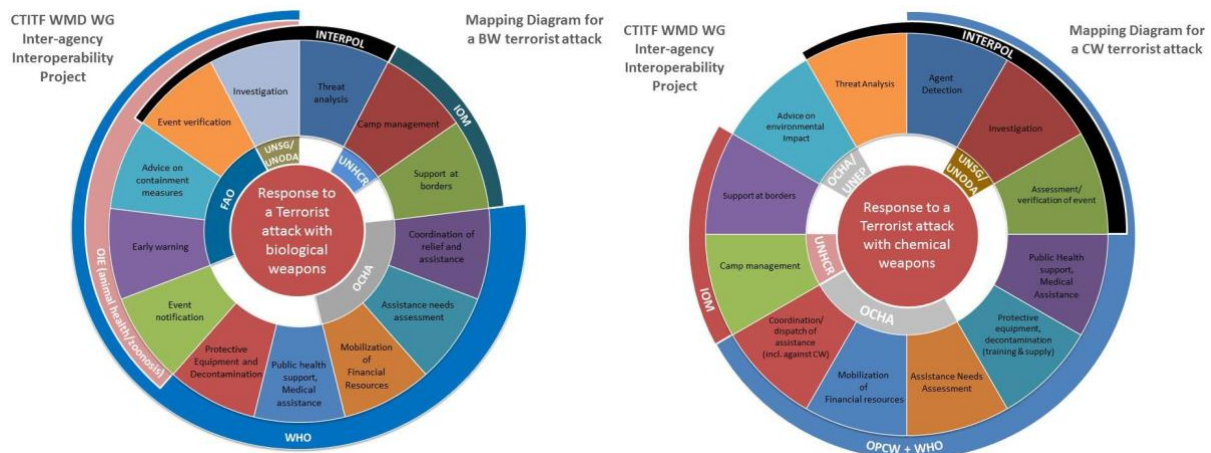
From a closer look at these diagrams, it emerges how complex it may be the coordination of information sharing and of other response measures. The report also provides a section on "common understanding of terms" where working definitions are provided that will be used by UN agencies.

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".[26] 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)

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[26] See http://www.unicri.it/topics/cbrn/security_governance/

3.2 The NATO approach

The NATO approach towards CBRN emergencies prioritises the preparedness and response phases related to a CBRN terrorist attack. The approach dates back to the 2002 Prague Summit, when NATO leaders endorsed a Civil Emergency Preparedness Action Plan,[27] which called for establishment of an inventory of national capabilities, development of interoperability for response services through exercises and adoption of standard operating procedures. The plan promotes cooperation between NATO countries *inter alia* on improving civil preparedness against and managing the consequences of possible terrorist attacks involving CBRN agents. In April 2005, an Updated Action Plan for the Improvement of Civil Preparedness for possible CBRN terrorist attacks was agreed upon and particular emphasis was put on disaster response coordination, protection of critical infrastructure and support to victims of an attack. In 2011, a civil emergency planning action plan specifically related to CBRN was adopted.

Guidelines and standards for CBRN response have also been developed, including the NATO Practical Guide to Public Information During a Crisis (Budapest III),[28] which devotes Section 5 on CBRN communication, as well as the 'Guidelines and Minimum Standards for CBRN First Responders', adopted in 2002 and revised in 2014. The guidelines for first responders are presented as a matrix divided into four sections, corresponding to four key areas within CBRN response, including (1) Information gathering, situation assessment and dissemination, (2) Scene management, (3) Saving and protecting life and (4) Additional Specialist support. For each of this section related to the response phase, the procedural steps and the required capabilities and equipment are outlines. These four areas are interesting since they suggest that the capabilities required by CBRN may vary not only depending on a specific phase (in this case, response), but also with respect to the specific target group involved (in this case, first responders). A definition of first responders is provided as follows: "individuals and teams that are involved in activities which address the immediate and short-term effects of a CBRN incident. This includes on-scene personnel from the police, fire brigades and health services acting to minimize the consequences of a CBRN incident. It also includes personnel in hospitals, crisis management institutions and those involved in detection, verification and warning".[29]

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[27] Prague Summit Declaration, para 4(e)

[28] NATO, 'Civil Preparedness Civil Protection Group, A Practical Guide to Public Information during a Crisis (Budapest Guidelines III)', first adopted at a Civil Protection Group Seminar in Budapest, Hungary in 1999 (Budapest I) and revised in 2006 (Budapest II).

[29] Ibid. p.5

3.3 The European Union approach

The first initiatives at the European Union (EU) level on CBRN protection were decided at the European Council held in Ghent in October 2001, followed by the adoption of the CBRN Programme in 2002[30] that aimed at increasing the efficiency of the measures taken at national and EU level against the CBRN terrorist threats. More specifically, the programme aimed at addressing key objectives, namely (a) risk assessment, (b) vulnerability reduction through preventive measures, (c) monitoring, warning and information sharing both among public authorities and between them and the public, (d) mitigation of impacts, (e) research and development, (f) international cooperation, (g) overall coordination. The first objectives therefore seem to replicate the key phases of an emergency management cycle as described in the previous paragraphs, from risk assessment and mitigation to response.

The updated version of the EU CBRN Inventory submitted in 2008 emphasises that the all-hazard approach to CBRN risks is take at the EU level, "while giving priority to the terrorist threat". The inventory covers "both 'safety' (prevention of the risks of accidents, pandemics, natural disasters) and 'security' aspects (protection against malicious acts), under the understanding that security is building on the proper implementation of safety measures".[31] The inventory is somehow structured around a set of phases, which are called however "policy areas". These include: threat reduction (composed by police and intelligence measures, as well as non-proliferation), risk and vulnerability reduction (composed by the assessment and reduction of risks and vulnerabilities in different policy areas, including human health, animal health, environment, industrial safety and security, critical infrastructures protection), response and preparedness (including civil protection, pharmaceuticals and military support). Cross-cutting areas include research and coordination.

The CBRN Action Plan adopted by the EU in 2009 integrates the structure of the CBRN inventory, adopts the all-hazards approach to CBRN risks and recommends approximately 130 actions to be implemented in stages and related to the three objectives of prevention, detection, preparedness and response.[32] In addition, the plan also includes horizontal measures relevant to

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[30] Council of the EU, 'Adoption of the programme to improve cooperation in the European Union for preventing and limiting the consequences of chemical, biological, radiological or nuclear terrorist threats' 14627/02 (2002).

[31] Council of the EU, 'Inventory of EU instruments relevant for addressing Chemical, Biological, Radiological and Nuclear risks ('CBRN Inventory')' 10382/08 (2008), para 5.

[32] European Commission, 'Communication on Strengthening Chemical, Biological, Radiological and Nuclear Security

all these objectives, such as international cooperation, research, training, and improving communication with the public. These actions address the entire spectrum of CBRN threats, encouraging best practices and information sharing as well as the identification of common standards and procedures. Among the key activities carried out at the EU level, the CBRN glossary aimed at providing harmonised definitions for key terms.[33]

Policy documents at the EU level thus somehow incorporate the division into (functional) phases of the CBRN emergency cycle, without providing detailed definitions. At the EU level, one of the most advanced CBRN emergency management cycle is the one proposed by the European Research and Innovation Forum (ESRIF) in its 2009 report.[34] ESRIF cycle mainly adopts a security perspective, i.e. focuses on malicious attacks, and is comprised by the following phases:
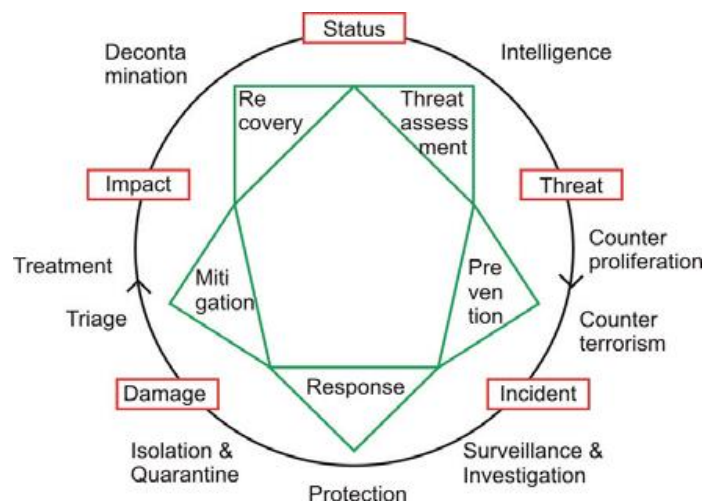
Source: ESRIF Final Report

It is interesting to note that this cycle includes 5 phases (which are called "security objectives" in the report where the graph is presented), including threat assessment, prevention, response, mitigation and recovery, and that it refers to the key capabilities and actions relevant to each phase, such as counter-terrorism and counter-proliferation in the prevention phase, or decontamination in the recovery phase. Somehow confusing, however, may be the fact that "mitigation" is placed immediately after the acute response phase, as it is understood as

in the European Union – an EU CBRN Action Plan' COM (2009) 273final.

[33] The CBRN Glossary is available at https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/crisis-and-terrorism/securing-dangerous-material/docs/cbrn_glossary_en.pdf

[34] ESRIF, Security research: Final ESRIF Report (2009), available at https://ec.europa.eu/growth/content/security-research-final-esrif-report-0_en

15

"preparedness for the medical treatment", i.e. the mitigation of the negative impacts through triage and treatment of the persons involved.

To sum up, the discussions at the EU level on CBRN protection have somehow structured the relevant measures around a set of objectives or policy areas, which roughly may be said to correspond to the phases of an emergency management cycle.

3.4 National approaches

European States usually have not adopted comprehensive CBRN emergency plans covering all phases of CBRN protection but have somehow integrated CBRN risks into their emergency preparedness plans, an effort that is generally dispersed into sectorial instruments. When more comprehensive CBRN plans are in place, these mainly refer to CBRN malicious events rather than adopting an all-hazard approach. This has of course implication for the conceptualisation of the CBRN emergency management cycle.

The most detailed and comprehensive CBRN plans and guidance documents are probably those developed by the UK. The CBRN Strategy adopted in 2010, with a strong focus on CBRN terrorism, is based on the four pillars of the broader counter-terrorism strategy CONTEST, namely pursue, prevent, protect and prepare.[35] These four pillars somehow reflect an emergency management cycle, but the strategy is more focused on the pre-emergency phase (prevention and preparedness). Pursue, for instance, refers to all activities aimed at stopping terrorists from carrying out an attack; protect refers to denying terrorist access to CBRN materials; while protect refers to reducing the vulnerability to a CBRN attack; finally, the 'prepare' pillar refers to developing the capabilities to promptly and effectively respond and to recover as quickly as possible. In addition to the CBRN strategy, the UK has offered guidance on specific issues related

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[35] See HM Government, The United Kingdom's Strategy for Countering Chemical, Biological and Radio-Nuclear Terrorism, March 2010; Home Office, "The Release of Chemical, Biological, Radiological or Nuclear (CBRN) Substances or Material. Guidelines for local authorities" (2003); Public Health England, "Recovering from a Chemical, Biological and Radio-Nuclear Incident" (2016), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/512066/Recovery_factsheet_2016.pdf;

The Counter-terrorism CONTEST strategy is available at

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228644/7547.pdf

to the CBRN event, including guidelines for local authorities, guidance on decontamination of buildings and people, on communication with the public.[36]

A national strategy on CBRN protection has been also adopted by Finland in 2017, with the purpose "to continuously improve the prevention of and preparedness for CBRNE threats", therefore focusing on these two phases,[37] even if enhancing the country's preparedness to CBRN events implies to develop capabilities and expertise that are relevant to the phases of response and recovery too. The strategy described the current status of CBRN protection in Finland and discusses a set of areas for development, including: Improving the coordination of CBRNE activities, Maintaining common situation awareness, Further developing the risk-based approach to supervision, Ensuring up-to-date legislation (and guidelines) on CBRNE activities, Detecting and preventing intentional actions, Enhancing the capacity for cooperation, Identifying, managing and investigating CBRNE incidents, Making communications part of the management of CBRNE situations.

4. Conclusions

This paper has discussed the concepts of disaster cycle and disaster phases, as developed in social science literature and applied as a framework to understand societal response to emergency situations. The use of these concepts in international conventions, as well as in policy documents and soft law instruments adopted at the international level has also been explored. The ILC Draft Articles and the Sendai Framework, for instance, have recently incorporated the disaster cycle as a continuum of actions pertaining to a set of inter-related phases. Legal scholarship has devoted some attention to the conceptualisation of disaster 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.

From the social science literature, we understand that the concept of disaster cycle composed of different phases is a management tool that can be useful for structuring disaster

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[36] UK, Strategic National Guidance, "The decontamination of buildings, infrastructure and open environment exposed to chemical, biological, radiological substances or nuclear (CBRN) materials", (2017) available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/62261 7/SNG_5thEdition_Final_March_2017__1_.pdf

[37] Finnish Ministry of the Interior, National CBRNE Strategy, 2017, available at http://julkaisut.valtioneuvosto.fi/handle/10024/160387

planning and risk reduction strategies, as well as for shedding light on the complex activities required during response and recovery. As suggested by Neal, disaster phases remain important research tools and scientific constructs to order data, provided that they are conceived as mutually inclusive (i.e. overlaps among them should be acknowledged), multidimensional (i.e. depend on the unit of analysis), reflecting social rather than objective time, functional units rather than temporal (i.e. each phase refers to specific functions, rather than to a pre-determined point in time) and including the multiple perceptions of the different groups involved (different units of analysis may experience different perceptions of the activities that occur in a specific moment). Disaster management is then understood as a continuum, with each phase (and also specific activities within phases) having implications for the other steps. For instance, mitigation and preparedness efforts are critical to support an adequate emergency response, and the way recovery is performed has implications for the mitigation of future emergencies. The interplays between different phases, however, is a subject area where more research is required.

These concepts have some relevance for international law as well. In international conventions, as well as in policy and soft law instruments, relevant obligations and standards are structured around the different phases, which serve also the aim of emphasising the importance of the pre- and post-disaster periods in addition to disaster relief. In order to maintain the complexity while adopting the disaster cycle, it is important to consider that, depending on the type of disaster, within each phase specific activities and capabilities may be required. In the third section, the paper has thus focused more specifically on the phases related to the CBRN emergency management cycle, as defined in international, regional and national policy documents.