Chapter 1
Introduction to Disaster Management

"All students of disaster management should consider what is meant when using the word the word 'disaster'."

What is meant by the word 'disaster'?

In 2009 the United Nations (UN) adopted an internationally agreed definition for the term 'disaster' which is:

"A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community to cope using its own resources." UN ISDR

This definition identifies three key components that can be affected by a disaster: people, property (including buildings, critical national infrastructure, businesses, the health and education economies and financial services) and the environment. The definition confirms that disasters happen on a scale that exceeds the capacity of the affected community to deal with the situation using their own day-to-day resources. This means that disasters happen at different levels; for example at the local, state or national level and even the regional and international levels. This in turn implies a requirement for disaster management planning and capacity to be built at each of these levels.

The 2009 UN definition for disaster is included within a wider list of basic definitions produced by the UN on the subject of disaster risk reduction and aimed at promoting a common vocabulary to be used by government authorities and emergency practitioners. In reality terms such as disaster, vulnerability, resilience, emergency and crisis have all developed a wide variety of definitions generated by multiple organisations and institutions. Indeed, with more than 40 disciplines and professions now contributing to the study of disaster management it is not surprising that interpretations and definitions differ.

And yet definitions do matter. Since the management of disasters involves issues of government policy, with legal implications, so national and international policy makers are careful to establish specific contexts when applying their definition to the word 'disaster'. For example, a government will wish to set a clear and auditable context when justifying the declaration of a disaster, and the implementation of a national disaster response plan, which may in turn trigger the legal use of military planning and response.

All students of disaster management should consider what is meant when using the word 'disaster'. Consider the following statements:

Governments in developed countries may use the word 'disaster' to trigger an enhanced level of national response accompanied by the release of additional financial provision (whether national or externally donated). Use of the word is thus limited, due to a fear of losing national reputation.

Governments in less developed countries may use the word 'disaster' to trigger an enhanced level of international response including the release of financial and logistical provision. Use of the word is thus potentially more routine due to a fear of insufficient resources and capacity.

Emergency Services may prefer not to use the word 'disaster' as it implies an

inability to deal with the situation. Terms such as 'incident' and 'major incident' are preferred.

Businesses may regard the word 'disaster' as a term likely to frighten clients, shareholders and investors thereby affecting business. Terms such as 'emergency management' or 'crisis management' are preferred.

For the media, everything is a 'disaster'; from the poor performance of a premier football team to earthquakes killing hundreds of thousands of people. 'Disasters' sell newspapers!

'Vulnerability' and 'hazard'.

Disasters are an inevitable mix of hazards and human activity. They are often described as the result of a combination of 'exposure to a hazard', the conditions of 'vulnerability present in the affected society', and the 'capacity and measures' (or lack of capacity and measures) to reduce or cope with the potential negative consequences.

The term 'hazards' requires further clarification since a hazard is not in itself a 'disaster'. Hazards can however trigger events that subsequently lead to a disaster. That is why hazards are often described as 'trigger events'. For example, a hazard such as an earthquake, occurring in the middle of a desert, will not affect much in the way of human vulnerability. However a similar sized earthquake, close to a densely populated community living in poor housing, with weak infrastructure, will 'trigger' a series of events that will impact heavily on that society.

Very broadly, the literature refers to 'natural hazards' and 'man-made hazards'. Natural hazards are themselves classified as 'rapid onset' (those that happen with little or no warning), and 'slow onset' (where the impact emerges slowly over time). Examples of rapid onset hazards include earthquakes, volcanic eruptions and flash floods where little or no warning is possible. Examples of slow onset hazards include drought and desertification.

Some governments attempt to disguise a lack of national or local resilience and preparedness to respond by attributing a disaster resulting from a rapid onset hazard to the event being a complete surprise, an act of God, or on a scale 'not hitherto seen'. However, communities generally know if they are built upon seismically active land or near to active volcanoes and thus the question facing the affected society and its government is not so much 'if' but rather 'when' the hazard occurs. Similarly, whilst meteorological warnings of an incoming cyclone or severe rain leading to flash flooding may be limited, such hazards are not rare, and indeed are often seasonal.

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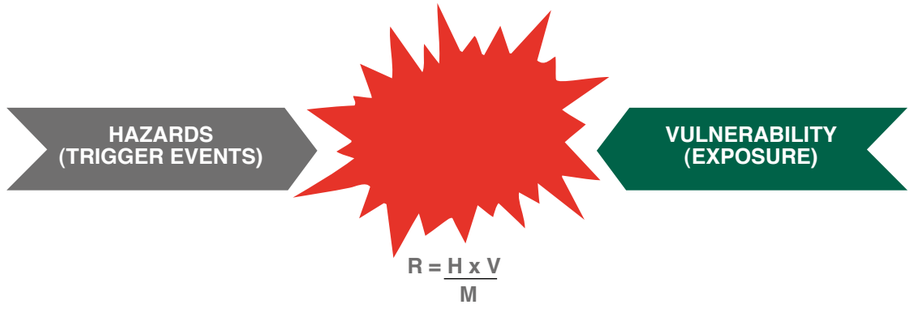
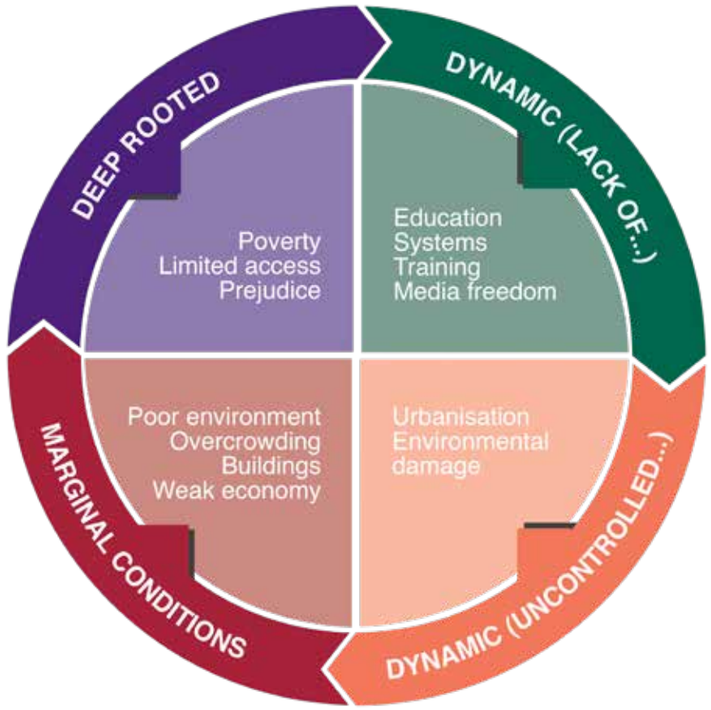
Figure 1.1 - Disaster crunch.



This simple graphic illustrates the relationship between hazards and vulnerability known as the 'Disaster Crunch Model' (Davis, 1978). The key message of the model is that in order to create safe conditions, action needs to be taken to reduce and mitigate the factors that are generating this vulnerability. The model was developed by Wisner and others and is more commonly known today as the 'Pressure - Release' model.

"There are also different classifications of 'man-made hazards', although scholars prefer the term 'human induced'. newspapers!"

Figure 1.2 - Causes of vulnerability.



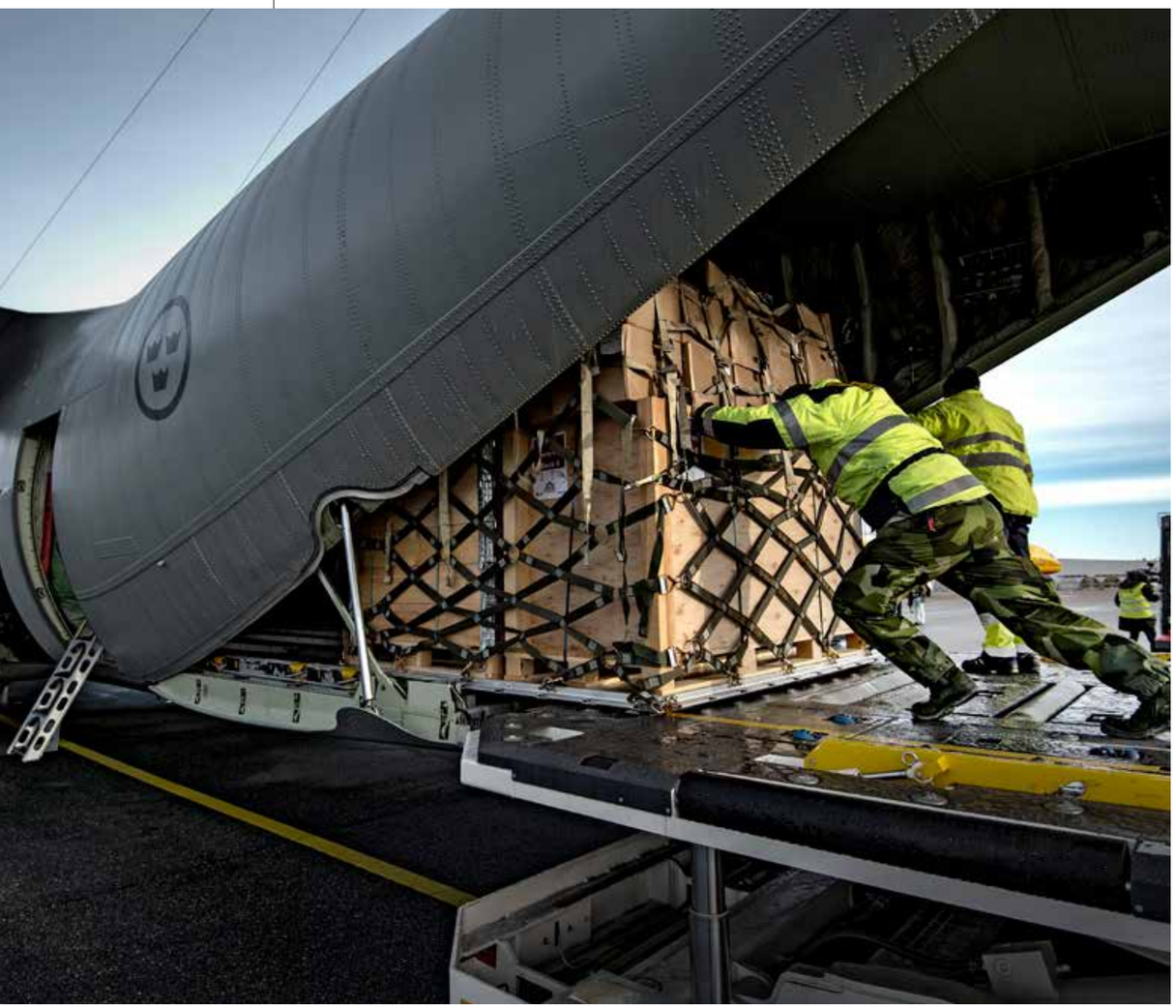
There are also different classifications of 'man-made hazards', although scholars prefer the term 'human induced'. Human induced hazards are the result of a mix of negligence, carelessness, greed, stupidity or corruption within government and society. Included within the term 'human induced' are technological hazards (for example industrial fires and transportation accidents) and intentional hazards (for example terrorism).

Disaster Managers classify natural hazards further into geophysical (earthquakes, landslides, tsunamis and volcanic activity), hydrological (avalanches and floods), climatological (extreme temperatures, drought and wildfires), meteorological (cyclones and storms) and biological hazards (disease, epidemics and insect plagues and infestations).

Inevitably such classifications over-simplify any analysis of hazards since the activity of humans can also cause natural hazards. For example deforestation, a human activity, has frequently led to landslides during heavy rains as a result of soil on steep hills no longer having tree roots around which to bind. Similarly, commercial housing developers have set fire to forests in order to clear land to build new housing complexes and have thereby triggered forest fires causing many deaths and the destruction of homes and communities.

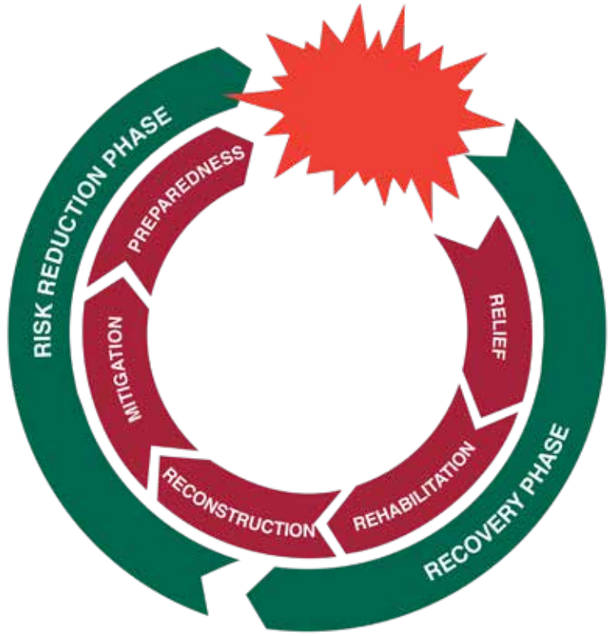
There are multiple stresses today that contribute to the vulnerability of a society. The most powerful of these is deeply rooted poverty, since this leads to many in society having limited access to the wealth, resources, knowledge and information that they need to be a resilient community. These are often described as 'dynamic deficiencies'; a lack of access to education, a lack of access to systems of social protection and welfare, a lack of access to relief and resources for recovery. Dynamic deficiencies are often the result of institutional discrimination, corruption or neglect.

Many 'disasters' listed in national disaster management plans around the world start as 'major incidents' that can happen at any time and in any place; for example, transportation accidents, a building collapse, industrial fires, toxic releases and oil leakages. All of these become referred to as disasters when not effectively prepared for, responded to, and recovered from. Disasters are frequently products of the social, political and cultural environments in which we live. It is for this reason that disaster management should be regarded as something that goes to the very heart of governance.



"Disasters are frequently products of the social, political and cultural environments in which we live."

Figure 1.3 - Disaster continuum.



The Disaster Continuum.

During the 1980s it was common for a country to have a 'Disaster Relief Agency' or 'Emergency Relief Agency'. A major development at the turn of the twentieth century was an international agreement that disaster should focus not only upon the costly task of responding to and recovering from disasters. Instead it was agreed that nations should be encouraged to engage with the equally vital task of reducing the risk of disasters through the development of risk reduction agendas leading to mitigation and preparedness.

UNISDR thus developed the 'disaster continuum' (see figure above) and identified five thematic areas within national disaster management activity which when addressed by a government and its institutions would significantly improve the **Risk Reduction** as well as **Response** capability of that society and thus its overall resilience. The five thematic areas are: Relief, Rehabilitation, Reconstruction, Mitigation and Preparedness.

Relief is most commonly associated with traditional disaster management. To many it conjures the image of multiple agencies and organisations working effectively together to bring a rapid response to affected communities. Such responders include a complex mix of local community survivors, local government agencies, national or state level emergency services, local or international voluntary organisations, military personnel, and disaster management agencies. This mix is made more complex with the introduction of external assistance from neighbouring countries and international aid agencies. The military have a major role to play in supporting Relief operations. Typical tasks allocated to the military include: search and rescue, evacuation, provision of relief items (food, water shelter), medical assistance, emergency communications networks, transport and logistical support and the restoration of security in an often chaotic environment.

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Rehabilitation. The word 'rehabilitation' is perhaps more easily understood as 'restoring a degree of normality'. This does not mean that everything is back to where it was before the disaster, but rather that certain essential services and conditions have been restored to allow a sense of normal daily life to be resumed, prior to the task of building back better. Essential services need to be restored as quickly as possible and these include the provision of water, sewerage and sanitation, power (electricity and gas), telecommunications and internet, and key infrastructure such as hospitals, roads and bridges, banks and certain shops (so that people can draw out money to pay for goods and services) and schools (albeit on a limited basis). Military equipment and expertise is frequently called upon to help clear roads, repair bridges, restore power-lines and telecommunication hubs and commence the task of conducting the necessary impact assessments to determine the scale of loss, and to assist in the coordination of civilians returning to their homes. This latter task would include military engineers assisting in assessing the scale of damage to housing in order to ensure that they are safe to return to.

Reconstruction. The task of planning for reconstruction is ideally commenced prior to a disaster happening. This is because after a disaster has struck, and public morale is low, it can be difficult to drive through innovative ideas for reconstruction 'to build back better'. The national or local mood may well be that they simply want to build back what they had before in order to provide psychological comfort from what is familiar. The good news is that disasters often unlock new funds to build back better. The bad news is that political, social, cultural and commercial agendas will often delay the start of reconstruction projects. Reconstruction, in many cases, takes years (not months) and so the military, in general, do not regard reconstruction as a task for their personnel and equipment. It is left instead to local and national government in partnership with businesses, communities and international aid agencies.

Mitigation. Risk reduction seeks to reduce both the **chance** of a disaster happening, and the **impact** when it happens. Military compliance and assistance in mitigation activity generally conforms in line with that of any other major governmental institution. Typical examples of disaster mitigation include:

a. **Engineering:** Retro-fitting old, and designing new buildings to make them more resilient to earthquakes; building and maintaining levees to protect vulnerable communities from flooding.

b. **Economic:** Diversification of the national economy to remove an over-reliance on one source of income; providing tax incentives to property owners to improve the resilience of their buildings.

c. **Physical planning:** Careful and accountable land planning for the location of key resources such as critical national infrastructure and telecommunications hubs. This may include ensuring that mobile phone repeater stations (and their power generators) are not located in areas vulnerable to flooding.

Preparedness. A key aspect of disaster management is contingency planning and the military are both familiar and experienced at devising realistic military scenarios and then developing workable plans to respond to those scenarios.

Effects of disasters. Typical effects of disasters include the following:

a. Loss of Life
b. Loss of Livelihoods
c. Damage to Property
d. Destruction of Infrastructure
e. Damage to the Environment
f. Financial Loss
g. Diversion of Resources
h. Epidemics
i. Migration
j. Displaced People or Refugees
k. Food Shortages
l. Insecurity
m. Loss of Reputation and Investment

Military tasks in disasters. Typical military tasks during disasters include:

a. Logistics Support
b. Medical Aid Support
c. Engineering Support
d. Water Supply
e. Bridging
f. Airstrips & Helipads
g. Harbour Facilities
h. Power Generation
i. Camp Construction
j. Communications
k. Protection of DPs or Refugees
l. Airlift / Air Drop
m. Rapid Assessment
n. Map Production
o. Search and Rescue
p. Delivery of Relief Items
q. Shelter Support
r. Planning Support
s. Relocation of Affected People
t. Repair of Essential Services

Each of these aspects of planning are military strengths and thus it is not surprising that the military are called upon to assist their civilian emergency planning counterparts in the development of disaster management plans at the national, regional and local levels.

Bringing the military mindset to disaster management.

In addition to the obvious 'military effects' that can be brought to a disaster response, the **military mindset** adds considerable value to the wider study and practice of disaster management. Consider the following:

a. **Coordination and integration.** Military commanders and their staff understand the need for effective situational awareness that ensures command decisions are based upon best available intelligence and information regularly drawn, analysed and presented from a wide range of stakeholders. Disaster management is, necessarily, a civilian led activity however there may be insufficient practical experience amongst the senior civilian managers in coordinating and integrating complex planning and operational relationships between multiple ministries, agencies and communities in a fast moving response scenario. The military can assist in designing and implementing appropriate structures for effective operational liaison, that help to de-conflict objectives and give clarity and unified purpose to any disaster response.

b. **Duplication or collaboration.** In recent years there has been an explosion in the growth of emergency management centres and information systems across the key public and private stakeholders involved in disaster response. Owners of such emergency centres now include ministries, national and local government agencies, individual emergency services (Police, Fire & Rescue, Ambulance, Civil Protection) and even private sector companies such as power and water companies, airlines, shipping and telecommunications. This has led to the twin problems of duplication and a consequent lack of information sharing. Multiple response centres have thus become multiple information sinks in that they operate in such a way that data and information is seen by each organisation as something to be captured and held. Centres should instead become hubs, allowing data in and out in such a way that informs their own decision making and assists others. The objective of such centres should be to share essential data to inform a commonly recognized information picture and assist integrated decision making. The military are no strangers to command and control centres and can assist in finding new ways to collaborate and share information between private and public sector agencies during a crisis. An example of an issue that frequently needs to be addressed is that of confidentiality and security. There is, for example, a case for emergency planners to be able to negotiate access to data and information sitting on multiple GIS mapping databases and owned by a range of relevant organisations. Instead planners are frustrated by barriers of unnecessary confidentiality leading to the creation of duplicate (and often conflicting) versions of the same data on separate databases. Even costly networks of CCTV cameras, complete with uplinks to crisis operations rooms and manned 24 hours a day, do not always provide the necessary situational awareness required to respond effectively in times of crisis. Images on CCTV screens may be meaningless if not accompanied by local comment from relevant observers on the ground, which provide the context. Such observers could be military personnel.

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c. **Lessons identified versus lessons learned.** There is a continuing need to learn from the lessons identified from previous disasters. The military are already familiar with the idea of post operational reports in which the activities and procedures of the military during an operation are scrutinized to confirm what happened and what might have been done better. However, the military also know that lessons that are identified need to be translated into lessons learned. Military operational reports identify lessons that are then adopted within an evolving military doctrine that in turn shapes military strategy, sets strategic training directives, and develops individual, team and corporate training and exercising objectives. Military post-operational procedures can encourage civilian counterparts to avoid costly repeats of the same mistakes.

d. **Joint exercising.** The military mindset is comfortable with the idea that the purpose of joint exercising is to test whether a plan works rather than to test a team or a commander. Cvilian disaster managers, on the other hand, tend regard joint disaster management exercises, with suspicion. They fear that such exercises may reveal a lack of ability in their organization (or themselves). This fear has led to many multi-agency exercises being reduced to a set of highly rehearsed drills at specifically agreed dates and times.

Are disasters rare events?

Disasters should not be regarded as rare events. They are in fact a normal part of daily life and in very many cases the hazards that trigger the disasters are repetitive events.

David Alexander writes about what he calls the 'curious paradox about disasters' - On the one hand, they are extraordinary events that require special organization and resources to tackle the disruption that they cause; and on the other hand they are so frequent and similar to each other to be normal, not abnormal, events.

Disaster management is about taking practical steps to enable states, governments, agencies, businesses and, above all, people to be resilient to the onset of a crisis or disaster. And it is for this reason that disaster management is relevant to the military (both in general, and to staff officers' training and education in particular). It is about the delivery of 'military effect' in support of a national and community response in order to help save lives, reduce casualties, secure communities and protect property.

The mission of any military staff college is to balance and complement 'practical activity' (such as war fighting and disaster response) with rigorous academic and intellectual thought. As the study of war fighting (past and present) informs future military doctrine, so the study of the nature and conduct of disaster management should also inform future military doctrine. It should help to shape the military objectives, tasks, roles and responsibilities to be undertaken by military forces in support of their civilian counterparts in the tasks of managing disasters. Such tasks and roles could be in support of a national or regional government or even offered as military aid to a foreign government.

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