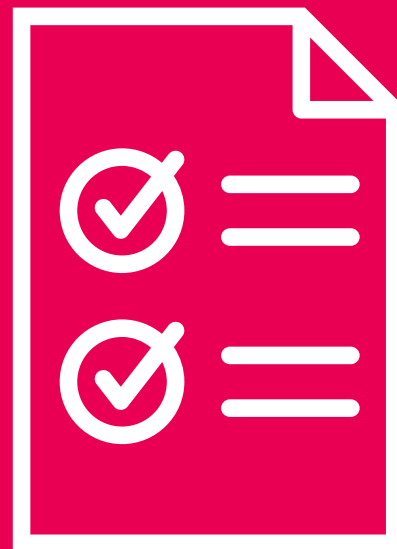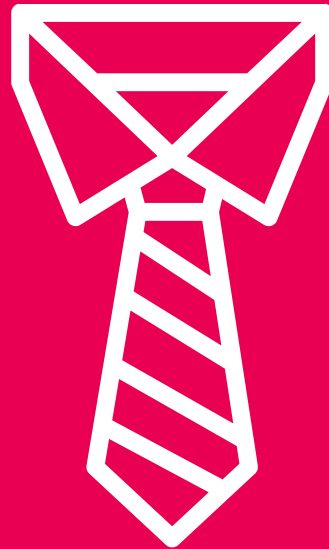# Introduction to Emergency Management Fundamentals

What is emergency management?

Catastrophic events aren't exactly new. In recent times, though, their pace has clearly accelerated. Just take the case of weather and climate-related disasters: those have more than quadrupled since the 1970s, according to The Economist. What discipline is responsible for handling these emergencies? That would be emergency management.

Emergency management is the organisation and management of resources and responsibilities needed to deal with emergencies, or situations that pose immediate risks to health, life, property, or the environment.

Whether at a private organisation, non-profit, or government agency, the emergency management capability should cover all stages of the emergency management lifecycle. Addressed by an emergency response team with clearly defined leaders, roles, and responsibilities, the lifecycle comprises mitigation, preparedness, response, and recovery. Here's a good break down of the emergency management lifecycle, courtesy of the Federal Emergency Management Agency:

The Four Stages of Emergency Management

Emergency management phase	What it means	Activities it includes and when they take place
Mitigation	Preventing future emergencies or minimising their effects	• Includes any activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies. • Mitigation activities take place before and after emergencies.
Preparedness	Preparing to handle an emergency	• Includes plans or preparations made to save lives and to help response and rescue operations. • Preparedness activities take place before an emergency occurs.
Response	Responding safely to an emergency	• Includes actions taken to save lives and prevent further property damage in an emergency situation, by putting your preparedness plans into action. • Response activities take place during an emergency.
Recovery	Recovering from an emergency	• Includes actions taken to return to a normal or an even safer situation following an emergency. • Recovery activities take place after an emergency.

Mitigation and emergency preparedness

The emergency management lifecycle covers a lot of ground. Its larger purpose, though, is to reduce the harmful effects of hazards and disasters, which simply can't be achieved by only prioritising emergency response.

Indeed, it's a goal that requires the efficient marshalling of numerous resources and responsibilities during a long temporal horizon – resources and responsibilities that are also likely to be spread across multiple agencies and entities. The process begins with mitigation and emergency preparedness.

Multiple components comprise these pre-response stages, with emergency management teams and agencies working towards the goal of limiting loss of life and reducing the financial impact of disaster response. How do they do it?

Well, emergency preparedness usually include care, evacuation, and environmental planning. The risk assessment is another component of emergency preparedness, involving the identification of high priority and vulnerable areas, where mitigation efforts are targeted.

The goal of emergency risk assessments is (1) the identification of possible disasters (internal and external) that might challenge a given area, (2) resource inventory and collection, (3) the identification of a facility or region's location- and resource, (4) as well as generating a list of priorities to tackle.

What does this look like in practice? The risk assessment of a single facility, for instance, would likely indicate natural disasters likely to affect the area, as well as possible mass casualty events – incidents that overwhelm the resources of emergency medical services. The risk assessment would also lay out the facility's capabilities and point out vulnerabilities, such as coverage or transportation. Most risk assessments implement criteria to evaluate potential hazards, assigning risk scores like high, medium, or low based on benchmarks of seriousness, manageability, acceptability, urgency, likelihood of growth, etc.

Similarly, mitigation actions performed before a disaster consist of proactive steps to limit identified vulnerabilities and risks. Steps themselves tend to be disaster-specific investments, usually in facilities or regions.

Emergency response planning

Emergency preparedness efforts get concretised in the form of an emergency response plan, emergency response planning is a process of detailing your overall strategy for responding to emergencies and disasters once they come.

The written emergency management plan is usually directed towards specific types of disasters, where it details procedures, roles, responsibilities, and training schedules to ensure successful implementation. When it comes to state-run entities, emergency response planning usually takes the form of a public-facing document. The contents of the plan include:

Statement of legal basis (e.g., legislation, ruling, directive, etc.), objectives, and assumptions

Descriptions of how people and property will be protected in emergencies and disasters

Assignment of responsibility to organisations and individuals for carrying out specific actions at projected times and places in an emergency that exceeds the capability or routine responsibility of any one agency

Identification of personnel, equipment, facilities, supplies, and other resources available for use during response and recovery operations

Identification of steps to address mitigation concerns during response and recovery activities

Establishment of lines of authority and organisational relationships

Challenges to emergency response planning

Even with expert emergency response planning, few things are more challenging for individual response agencies than procuring and deploying the right resources to the right people and places during complex disasters covering wide areas and causing mass casualty and damage. The imperatives of catastrophic incident response will routinely overwhelm the resources and capabilities of individual agencies acting alone.

Meeting the life and property-saving objectives of the disaster response requires an influx of personnel, skills, technologies, facilities, equipment, and/or funding from other organisations. That's a major fault-line in emergency management, though: how to get separate entities working together productively throughout the emergency management lifecycle, so as to close the emergency response performance gap.

The gap has been studied carefully in the emergency management literature. And the consensus seems to be that emergency responses undertaken by clusters of public safety agencies incur a higher likelihood of:

Extended response times

Disputes and competition as to who is in charge, when, and where

Higher potential for loss of property and life

Difficulties in filtering and validating the flood of emergency information generated during the disaster

Lack of shared situational awareness on the ground

Difficulties in coordination among response agencies due to incompatible infrastructure

What can be done, instead? A full list of best practices to mitigate the challenges of inter-agency cooperation or interoperability would be too extensive for this piece. But we'll lay out one key innovation of best-practice emergency management system standards like ISO 22320 that should help agencies work more efficiently towards a common mission.

That innovation comes in the form of minimum requirements for command-and-control systems deployed during emergencies that require multiple emergency management agencies. In that emergency context, the primary objective of the emergency management system itself is to enable the organisation to respond efficiently, both as an independent entity as well as jointly with other parties.

Various elements go into achieving that objective, including structures, processes, and resources. For instance, the command-and-control system itself must be able to perform a number of documented actions, including the following:

Establishing and updating goals and objectives for the incident response

Determining roles, responsibilities, and relationships

Establishing rules, constraints, and schedules

Ensuring legal compliance and liability protection

Monitoring, assessing, and reporting on the situation and progress

Recording key decisions

Managing resources
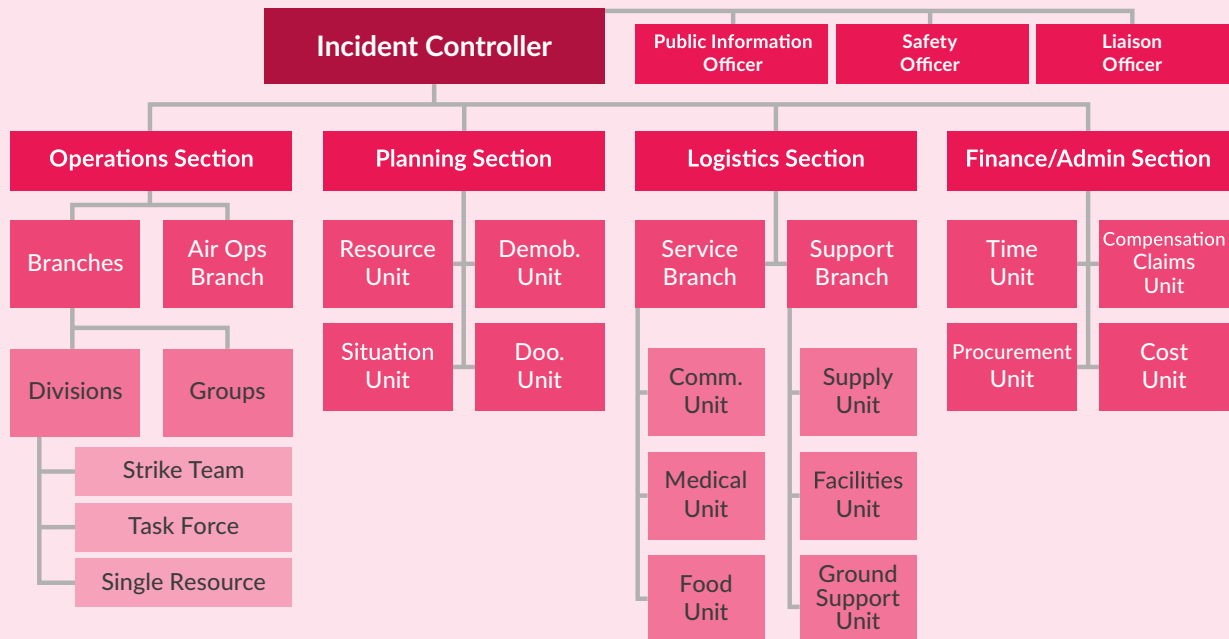
Disseminating information

That system would be run by a functional emergency management hierarchy whose goal it will be to make comprehensive and effective decisions in a timely manner. Subordinating roles and responsibilities within that hierarchy should also contribute to making comprehensive and effective decisions quickly.

In most emergency management structures, including the Incident Command System and Australasian Inter-Service Incident Management System, the Incident Commander will sit at the top of this hierarchy. The Incident Commander is the role given final decision-making authority over command and control. The purview of the role also extends to setting up the incident response organisation, as well as activating, escalating, and terminating processes.

Other roles should figure in the command-and-control structure, as well. To be effective, the structure ought to be set up so that that Incident Commander can efficiently delegate authority as dictated by the pace and scale of the incident. Those subordinating roles and responsibilities are likely to cover the following functions (See a diagram below):

Personnel, administration, and finance

Situation awareness and planning

Decision making and implementation (i.e., operations)

Logistics

Media and press

Communications and transmission

Liaising

Public information

Safety

An example of an emergency management hierarchy: the Incident Command System organisational structure

Incident Controller		Public Information Officer	Safety Officer	Liaison Officer

Operations Section | **Planning Section** | **Logistics Section** | **Finance/Admin Section**

Operations Section:
- Branches
  - Divisions
    - Strike Team
    - Task Force
    - Single Resource
  - Groups
- Air Ops Branch

Planning Section:
- Resource Unit
- Situation Unit
- Demob. Unit
- Doo. Unit

Logistics Section:
- Service Branch
  - Comm. Unit
  - Medical Unit
  - Food Unit
- Support Branch
  - Supply Unit
  - Facilities Unit
  - Ground Support Unit

Finance/Admin Section:
- Time Unit
- Procurement Unit
- Compensation Claims Unit
- Cost Unit

Command and control processes themselves should be dynamic, given the inherent fluidity and complexity of an emergency. In particular, flexible processes must be provided for so as to ensure that resources remain available and functional throughout the response.

Disaster management and recovery

Then, there's disaster recovery. Contrary to what the name might suggest, recovery often begins while emergency response activities are still active. The disaster recovery process aims on restoring, redeveloping, and revitalising communities impacted by a disaster.

As you'd imagine, disaster recovery is a complex and challenging process involving all sectors of a community as well as outside interests. In many cases, it is not even clear if and when recovery has been achieved because of varying stakeholder goals for the community, for example with some wanting it returned to what is considered its pre-disaster status and others wanting it to undergo change to realize a vision in which advances are made in risk reduction and other areas.

Emergency operations centre

What are some tools that help emergency response teams achieve goals throughout the length of the emergency management lifecycle? One such tool is the emergency operations centre (EOC).

The EOC has become a staple in emergency management and public safety, and it's easy to see why. A physical hub where Emergency and Incident Management teams coordinate information and resources during low-frequency, high-risk incidents, the EOC supports incident management activities, up to and including on-scene operations.

The very utility of the approach explains why physical EOCs (fixed, brick-and-mortar facilities) have proliferated in recent years, not just among government organizations and traditional disaster relief agencies, but in for-profit businesses, as well. After all, physical EOCs help teams, individual organisations, and multiple agencies working in concert mobilise people and equipment for incident responses lasting the entirety of an emergency.

EOCs come in varying shapes and sizes – indeed, virtual emergency operations centres have proliferated in recent times. But at heart, an EOC is a central command and control facility responsible for carrying out emergency management, and ensuring the continuity of operation. Key emergency personnel are trained in Incident Command and their roles and responsibilities, and the organisation's EOC is responsible for the strategic overview and coordination of the disasters.

Emergency communications

Physical EOCs aren't a cure all, though. They aren't always effectively used during trainings and exercises; and standardised incident command systems aren't always critically evaluated within the EOC structure. What's more, it's often the case that teams working in EOCs lack anywhere, anytime access to key resources, not just exercise and debriefing guides produced by national emergency organisations but also effective emergency communications.

Emergency communications are a key component of emergency lifecycle management, and emergency communications systems (ECS) facilitate communications of critical information before, during, and after disasters. ECS can take any form but are likeliest to be:

📱	Mobile phone	✉️	Email
📞	Line-based phone	💬	Instant message
📻	Radio	💬	SMS or text message
📲	Social media	▶️	Streaming video

Emergency management software

Emergency notification systems also provide a form of emergency communication. These systems, however, tend to facilitate the one-way dissemination of information, usually to large groups. Many emergency notification systems these days are digital; they represent a key subsection of emergency management software platforms.

An emergency management system helps emergency organisations effectively manage all emergencies, through their entire lifecycle. Some platforms even help with business-as-usual operations and critical infrastructure resilience.

Great strides have been made in this area. But volunteer disaster and emergency management organisations still say the stark challenges they face haven't been sufficiently mitigated by many of the advanced, emergency management software platforms they've procured.

How's that? Well, it's not uncommon that emergency management software can require more, dedicated IT expertise (to implement) than agencies have to provide. The IT function is notoriously overburdened in emergency response organisations – doubly so in the age of COVID-19 – while some system implementations and configurations are inordinately cumbersome and time-consuming.

Another complaint is that once configured, those solutions only provide value for emergency response, not the entirety of the emergency management lifecycle. And it's in those other phases that teams often fall short.

If software doesn't help the problem, emergency management and business continuity planning and recovery will continue to get short shrift, much to the detriment of larger emergency management goals.

The consequences are grave. Without the right emergency management software platform, teams might proceed with noticeably divergent understandings of emergency risk and less ability to communicate, react, respond to, recover, and learn from incidents.

Fortunately, the right advanced emergency management technologies, such as Noggin Emergency, can help organisations overcome these challenges and start tackling every aspect of emergency management, throughout the entirety of the emergency management life cycle.

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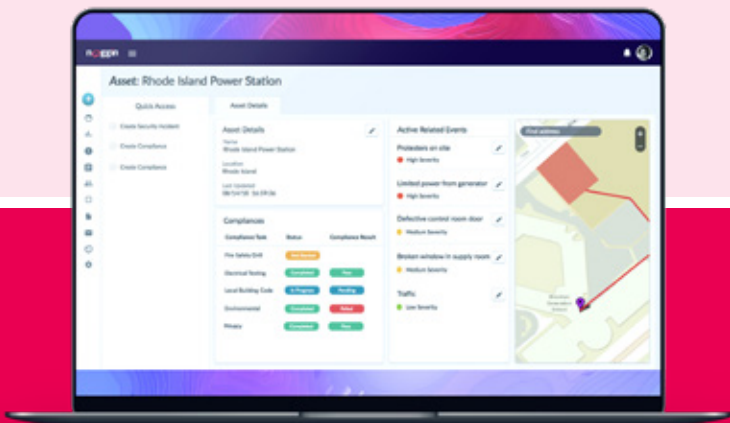
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