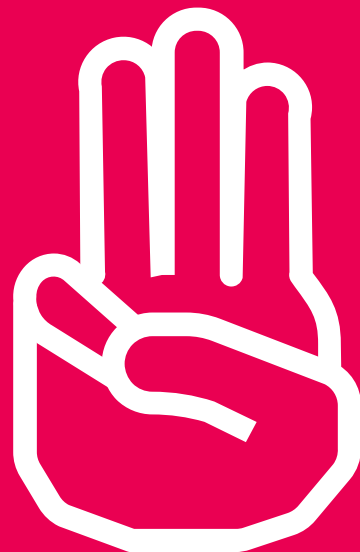
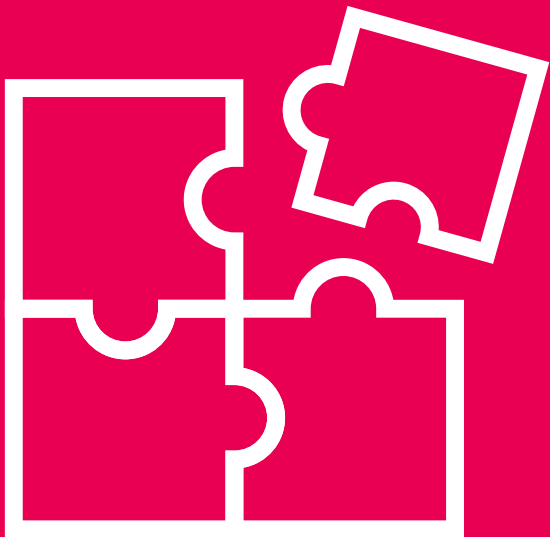


Emergency & Disaster Preparedness












What is emergency preparedness?

Over the last half century, emergencies and disasters have been on the precipitous rise. The task of planning for and responding to these sudden phenomena, of sufficient magnitude to overwhelm the resources of medical facilities, regions, or entire locales and thus require external support, falls under the rubric of emergency preparedness resilience and response.

Types of emergency and disaster situations

- Active shooter
- Avalanches
- Bushfire/wildfire
- Cyberattacks
- Earthquakes
- Extreme heat
- Flood
- Hurricane/cyclone
- Landslide
- Epidemic or pandemic
- Nuclear explosion
- Power outage
- Thunderstorm
- Tornado
- Tsunami
- Volcano
- Winter storm

Emergency preparedness itself encompasses any number of fields, with those responsible for emergency preparedness efforts, such as emergency planning, needing to address the following elements:

-  Public safety and emergency preparedness
-  Facilities
-  Logistics and administration
-  Finance
-  Clinical and non-clinical patient care
-  Transportation
-  Public relations
-  Communications
-  Infection control

The end-result of this emergency preparedness resilience and response effort tends to be the emergence of discrete plans addressing all the considerations above. Those plans get reinforced by continuous evaluation and training, which lead to plan updates that better prioritise the resources needed to address the most severe disasters.

The importance of disaster preparedness

Of course, one might ask: why prepare for a disaster when they are definitionally low-probability events? Well, in recent times, these low-probability events have increased in kind, intensity, and cost.

According to the Ecological Threat Register 2020, the number of natural disasters around the world has increased ten-fold since 1960. The cost associated with these natural disasters has also risen from an estimated USD 50 billion in the 1980s to USD 200 billion per year at the end of the 2010s.

The U.S., alone, experienced ten or more separate billion-dollar disaster events every year from 2015 to 2020. The year 2020 set a new annual record of 22 such events, according to The National Centers for Environmental Information (NCEI).

These trends haven't just affected the U.S., though. The Asia-Pacific region (APAC) recorded nearly 2900 disasters from 1990 to 2019. Australia, with its population in the twenties of millions, has experienced more than 150 disasters over the same time.

For vulnerable locales, disaster preparedness is vital. The products of disaster preparedness efforts provide three very important benefits:

- 1 Response readiness**, i.e., the capacity of an organisation or region to respond effectively to a disaster as reflected in its planning and exercises.
- 2 Improved emergency management**, i.e., the ability of an organisation or region to mount a timely and effective response that minimises the loss of life and property damage, as well as maintains operational capabilities.
- 3 Rapid recovery**, the mitigation of hazards, faster restoration of the built environment, and quicker resumption of normal operational/community life

Anticipating disasters and acting in advance of them to reduce risk and limit losses also has a financial benefit for organisations and locales. And that benefit can be quite large.

In 2018, researchers from the National Institute of Building Sciences released findings claiming that every USD 1 invested in disaster mitigation by three federal agencies saves societies USD 6. In the case of certain disasters, like riverine floods, the savings from preparedness were even larger: a USD 7 to USD 1 benefit for proactive mitigation steps, such as acquiring or demolishing flood-prone buildings.

Emergency preparedness procedures

How then to recoup the benefits of emergency preparedness? The lifecycle of emergency preparedness procedures falls into three broad stages. They include:

- 1 Emergency planning**, an ongoing process aimed at reducing the effect of destruction caused by unexpected situations. Emergency planning usually encompasses:
 - a) Planning and prevention**. Focuses on providing protection to limit loss of life and reduce the financial impact of disaster response. Planning, here, includes care, evacuation, and environmental planning, as well as response standards. 
 - b) Risk assessment** (more below). The identification of high priority and high-vulnerability areas towards which mitigation efforts are directed. 
 - c) Mitigation**. Comprises actions performed before the disaster, including proactive steps to limit vulnerabilities identified in the risk assessment and address those previously recognised risks to support the disaster response. Mitigation strategies are generally disaster specific. 
 - d) Preparedness**. Measures taken to prepare for a disaster. 
 - e) Developing a response team**. Clearly defining leaders, roles, and responsibilities to address key issues in emergency response. 
 - f) Writing an emergency plan** (more below). Detailing the overall strategy for responding to a disaster once it has occurred. The written emergency response plan is usually directed to specific types of disasters. The plan comprises detailed procedures as well as identifies leaders and lists training schedules for the emergency plan to be successfully implemented when the time comes. 

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Emergency response, a time-limited phase focused on executing the contents of the emergency plan as drafted and exercised. Response can encompass facilities as well as a regional and national level planning. The initial concern, however, tends to be fulfilling basic humanitarian needs, such as limiting loss of life. Coordinating efforts across multiple facilities and response actors, particularly when resource demand exceeds capacity, is one of the more difficult aspects of emergency response.

Two of the most prolific response tactics are:



a) **Shelter in place**, i.e., establishing a safe location within the confines of a facility or location and remaining in that place; also includes caring for those injured via the resources that are immediately available.



b) **Evacuation**, i.e., leaving a facility or region affected by a disaster. In this scenario, resources may be left in place or transferred as soon as possible.

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Salvage and recovery, this final stage occurs after a determination of the initial response is made, the threat to human life is under control, and efforts are made to begin to return the facility or area to normal operational function. However, in certain scenarios, such as wars and pandemics, salvage and response efforts can last for years.

Emergency preparedness risk assessment

So, what about the risk assessment? A staple of emergency planning, the risk assessment exercise serves to identify disasters (both internal and external events) that could affect the area. The method for performing the assessment consists of inventorying resources (in-region, in-facility, etc.), identifying the facility's or region's vulnerabilities based on its location and resources, and then generating a list of priorities to address those vulnerabilities.

Here, the risk assessment bears comparison with the business impact analysis (BIA). A business continuity management tool, the BIA offers a process for determining the potential impacts resulting from the interruption of time sensitive or critical business processes (more below).

Focus on the Business Impact Analysis

At the intersection of continuity planning and risk management lies the business impact analysis. A diagnostic of an organisation's entity's internal dependencies and vulnerabilities, the business impact analysis provides the analytical baseline for developing BCP materials, and battle-readying management systems and processes. In essence, it acts as the dashboard for asset protection and recovery action prioritisation, keeping everyone on the same page, should disruption.

A good BIA offers senior leader's a bird's eye view of the critical activities that generate the most benefits to the organisation (or region), how badly those activities would be impacted by a disruption, as well as insight into the pathways by which impact would possibly take place. It is these interdependencies that the business impact analysis is particularly focused on identifying and quantifying, with the analysis itself serving as a prerequisite for an informed prioritisation of resources assets to protect and the relevant recovery actions to initiate in the case of an emergency.

So how do organisations identify these interdependencies, and what's the best way to quantify the risks inherent in them? Well, the process for developing a BIA often takes the form of workshops or questionnaires

Such analysis is oriented towards critical indicators that summarise the 'breaking point' for an organisation's operations, e.g., the maximum amount of damage an operation can sustain before the business is functionally dead in the water.

This process surfaces recovery requirements that are then used to develop strategies, solutions, and plans for the business's unique vulnerabilities. For example, if a data centre estimates that any data losses of greater than four hours would mean the end of the business, but data backups entail significant costs, the analysis might inform plans for data backups every hour rather than every second.

Risk assessments consider numerous hazards; and for each hazard, planners develop possible scenarios that could unfold depending on timing, magnitude, and location of the hazard.

What assets are at risk from hazards? The biggest asset is people; injuries are usually the first consideration of a risk assessment. Those scenarios that could cause significant injuries are then highlighted to ensure that the appropriate emergency plan is in place. Besides people, physical assets may also be at risk, including buildings/facilities, IT systems, utility systems, important equipment and materials, etc.

Businesses, on the other hand, are likelier to consider the impact an incident might have on its customer relationships, as well as with the surrounding community and other stakeholders, including partners, regulators, the media, etc. Business leaders might limit risk assessments to situations that would negatively affect confidence in products or services. Common hazards include:

Type of hazard	Examples
Natural	Flooding, Dam/Levee Failure, Severe Thunderstorm, Tornado, Windstorm, Hurricanes and Cyclones, Winter Storm, Earthquake, Tsunami, Landslide, Subsidence/Sinkhole, Volcano, Pandemic, Foodborne Illness
Human	Workplace Accidents, Entrapment/Rescue, Transportation Accidents, Structural Failure/Collapse, Mechanical Breakdown, Labour Strike, Demonstrations, Civil Disturbance, Bomb Threat, Lost/Separated Person, Child Abduction, Kidnapping/Extortion, Hostage Incident, Workplace Violence, Robbery, Sniper Incident, Terrorism (e.g., Chemical, Biological, Radiological, Nuclear, Explosives), Arson, Cyber/Information Technology
Technological	Loss of Connectivity, Hardware Failure, Lost/Corrupted Data, Application Failure, Utility Outage (e.g., Communications, Electrical Power, Water, Gas, Steam, Heating/Ventilation/Air Conditioning, Pollution Control System, Sewage System), Fire, Explosion, Hazardous Material spill/release, Radiological Accident, Hazmat Incident off-site, Transportation Accidents, Nuclear Power Plant Incident, Natural Gas Leak Supply, Supplier Failure, Transportation Interruption

Natural disaster preparedness plan

The results of the risk assessment flow into an emergency preparedness document. In preparing for natural disasters, the document in question will be a natural disaster preparedness plan, a species of incident action plan (IAP).

The IAP formally documents control objectives (or end-goals in dealing with the natural disaster), objectives for the duration of the operational period, as well as the response strategy as defined by Incident Command (See: ICS).

What else goes in an IAP for natural disaster preparedness? Well, this type of IAP is likely to document general tactics to achieve concrete goals and objectives as specified within the overall strategy, while providing important information on the event and limits of the response. The benefit of the IAP is to facilitate information sharing, specifically the sharing of resource-related information. Other elements to consider in an IAP for a natural disaster include:

- Where the response system should be at the end of the response
- Important areas to be addressed during specific operational periods
- A list of priorities and the general approach to accomplish those objectives
- The precise methods developed to achieve objectives
- Primary roles and responsibilities (e.g., ICS hierarchy)
- Assignment list with specific tasks
- Critical situation updates and assessments
- Updates on resources
- Map of the incident scene
- Important component plans
 - Health and safety (responder injury or illness)
 - Communications (how information will be exchanged between areas)
 - Logistics
 - Etc.

Finally, the pace of emergencies and disasters keeps accelerating – almost yearly. As such, emergency and disaster preparedness efforts have never been more important to ensure response readiness, limit loss of property and life, as well as expedite recovery. To recoup the benefits, however, organisations and locales must commit to emergency and disaster preparedness procedures and procure the appropriate emergency management software solutions, like Noggin Emergency.

Sources:

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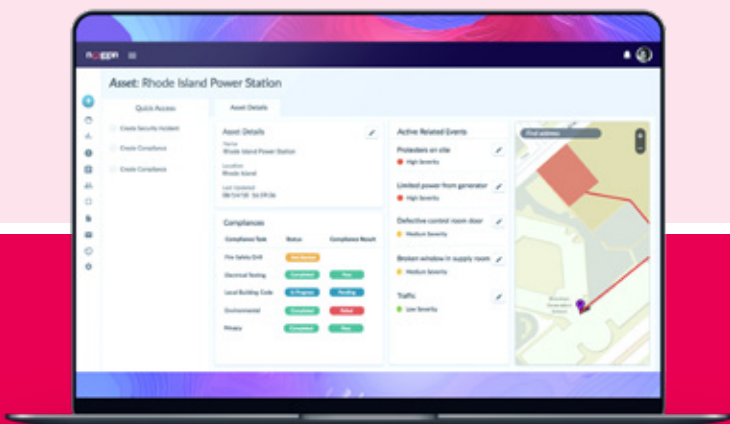
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