ipieca **IOGP** International Association of Oil & Gas Producers
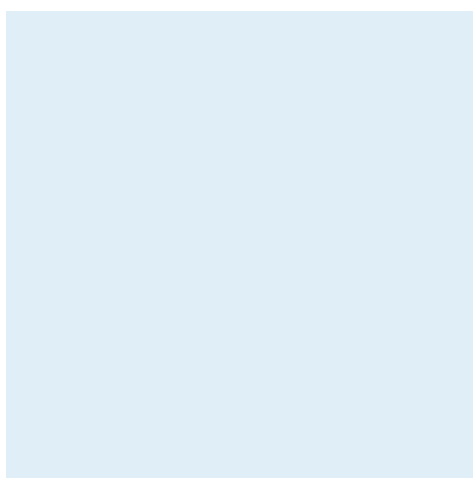
Incident Management System for the oil and gas industry

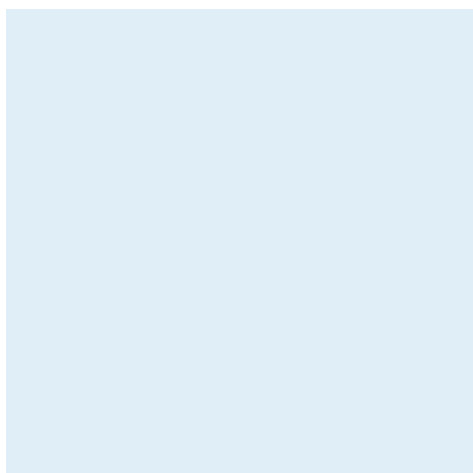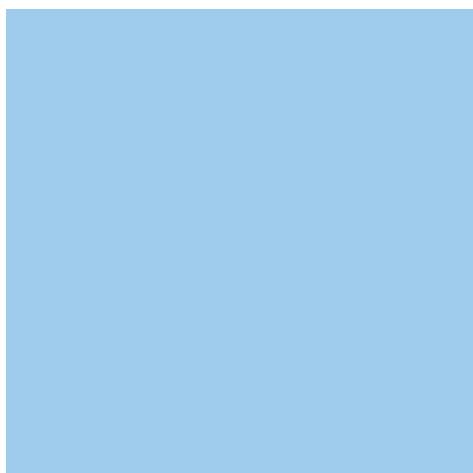## Good practice guidelines for incident management and emergency response personnel

Marine spill preparedness

Advancing environmental and social performance across the energy transition

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IOGP Report 517

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Incident Management System for the oil and gas industry

Good practice guidelines for incident management and emergency response personnel

Contents

About this guide

This guidance document addresses incident response management and is intended to supplement the International Maritime Organization's *Guidance Document on the Implementation of an Incident Management System* (IMO, 2012) which provides a high-level overview of the subject. It is also designed to be fully compatible with Oil Spill Response Limited's *Incident management handbook* (OSRL, 2012) and other equivalent incident management handbooks which provide detailed material and tools for the application of the Incident Management System (IMS). For further information see also ISO 22320:2018, *Security and resilience — Emergency management — Guidelines for incident management* (ISO 2018). While the emphasis of this document is on incident management, it is important to acknowledge the broader concept of crisis management which focuses on the impact of external influences on incident management. For further reading on crisis management as it pertains to this guidance, see ISO 22361:2022, *Security and resilience — Crisis management — Guidelines* (ISO 2022).

This document is based on the Incident Command System (ICS), a version of IMS that is widely used by industry, response contractors and professional emergency services organizations. An IMS includes a set of proven organizational and management principles including common organizational elements (e.g. sections, branches, divisions, etc.), management structure, terminology and operating procedures.

Small incidents can usually be managed effectively with a simplified IMS approach to both the organizational structure and the planning process. Experience has shown that management of a major response, which may involve hundreds or even thousands of responders, requires the use of a more structured IMS and a defined, scheduled planning process that produces a coordinated, written incident action plan. The adoption of a common approach to incident management by industry, governments, response organizations, contractors and experts will allow for the integration of the incident management team (IMT) participants under a single IMS, together with the coordinated, efficient use of resources critical to an effective response.

An IMS can be used effectively by an industry operator: in single command, to directly manage an incident; in coordinated command where response actions are undertaken in parallel with government actions; and in unified command where the operator and government work together as a single response organization. In certain locations, industry and other response organizations must adapt to, and follow, the incident management system used in that country. This can be best achieved by acknowledging national incident management structures in company contingency plans and ensuring State agencies are involved fully in exercises, including in planning such exercises. However, where an incident occurs affecting a State with which no prior engagement has occurred, the company involved should be prepared to adapt in order to engage quickly and effectively. This requires adaptability and flexibility be built into the company IMS.

Emergency incidents require timely action and 'prudent over-response' to ensure the protection of people and the environment, and to prevent unnecessary escalation of the incident. An IMS enables response organizations to rapidly establish command and control, integrate resources, plan coordinated response actions to achieve objectives and improve the efficiency of cost recovery from insurers where relevant.

The successful introduction of an IMS into a response organization requires a commitment by senior leaders to a sustained competency-based training and exercise programme. This should include ongoing basic and role-specific IMS training to acquire the necessary process and technical skills, and periodic simulations or exercises to provide robust experiential learning and competency development.

Summary

Effective incident management requires the ability to establish command and control, i.e. to move the management of the response from the initial emergency reactive mode to a project phase, where the scope of the incident is understood, appropriate response actions are being taken in alignment with response strategies, and where the outcome of the incident is being driven by a clear set of objectives to protect people and the environment. Experience has shown that the use of a structured IMS is critical to establishing command and control in response to a major incident, to allow a move to the second preferred phase more readily.

An IMS facilitates command and control of an incident by organizing leaders, functions, response teams and other resources through a scalable, fit-for-purpose organizational structure with pre-identified roles, responsibilities, reporting relationships and authorities necessary to manage an incident. An IMS also facilitates implementation of the planning process necessary to ensure a direct link between the incident management objectives and response actions being taken in the field. The process can be represented by a 'Planning P', as shown in Figure 1.

Figure 1: The IMS process can be represented by a 'Planning P'
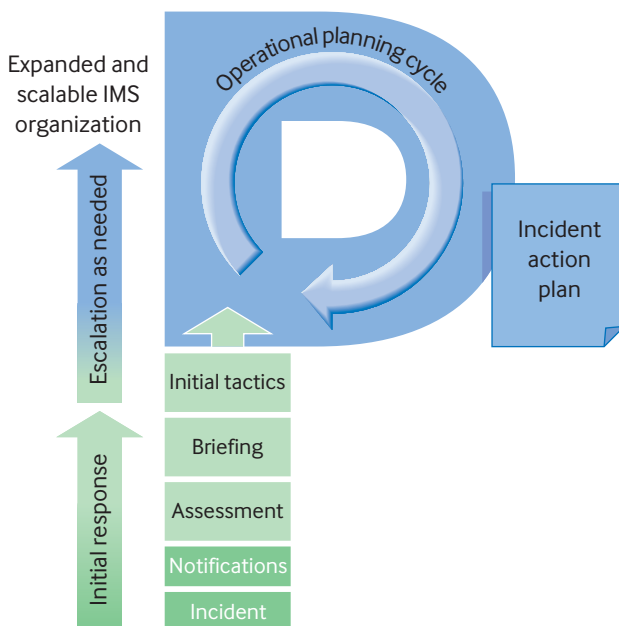
The vast majority of incidents are small, and the IMS process used to manage the response is typically simplified and objective driven, and uses an iterative process to assess the progress of the incident and the response. In these cases, the incident or event can be managed through the 'leg' of the P. Industry experience has shown that major incidents, where hundreds or even thousands of responders may be involved, requires a robust and structured planning process and a coordinated, written incident action plan to manage the response. In these rare cases, an operational planning cycle is followed by an expanded IMT.

This document introduces the common elements of an IMS to stakeholders who may be called upon to work together to provide specific expertise, assistance or response resources during an emergency incident. These stakeholders can include the industry operator, response organizations and government entities. Each stakeholder and group needs to have a clear understanding of its function under an established IMS to ensure an effective, timely and coordinated response.

Background

Incidents typically happen with little or no advance warning, and require an immediate response by the industry operator and supporting response organizations. Major incidents, which are rare, may require a response involving many organizations, including governmental entities across multiple jurisdictions and experts from many disciplines. Such incidents may also involve numerous parallel activities such as search and rescue, ensuring the safety of the public and responders, source control, fire suppression, salvage, protecting the environment, securing property and infrastructure from damage, and providing timely communications.

A wide range of response organizations, including contractors, governmental entities and resources may be called on to respond to incidents, and their missions and procedures may vary. The coordination of, and collaboration between, these organizations is critical to an effective response operation.

These groups and individuals must be able to work together at short notice, and may have little or no prior experience of collaborating with each other to manage stressful, dangerous and evolving problems in what may be a hazardous working environment. Responders will need to cultivate a working trust with one another, have clear roles, responsibilities and authorities, and ensure that sufficient on-scene resources are available at all times. Flexibility in the approach by the industry organisation and a willingness to adapt to maximise effectiveness and efficiency is also an important factor in a successful response.

Incident responders face many other potential challenges in responding effectively to major incidents. Factors such as weather, site access, resource constraints, poor coordination, poor infrastructure, lack of pre-approvals for response strategies, or poor communications can delay response times or hinder incident response efficiency. A delayed or ineffective response can result in unnecessary impacts which may present risks to people, the environment and property.

An IMS is an essential tool for overcoming many of these challenges; it provides clarity in command and control, improves resource coordination and communications, and facilitates the cooperation and integration of responding organizations. An IMS is a scalable, systematic method for coordinating and controlling the wide variety of important activities, resources and response organizations from a central command post.

The size and complexity of every incident is different and will vary as the incident response progresses. An IMS provides the organizational structure for response teams to expand or contract to meet the needs of the required response. It defines responders' roles and responsibilities, requires the use of common titles and terminology, and can be used to establish a clear decision-making process, regardless of the size of the response organization. An IMS can be integrated into any properly trained responding organization, and minimizes redundancy, thereby optimizing the deployment of resources. An IMS also provides effective two-way communication, facilitating improved coordination between responding organizations while reducing the overall communications load associated with a response.

Experience has shown that the use of a structured IMS is critical to establishing effective command and control in response to a major incident.

Organizational principles

The principles of IMS organization were developed in the 1970s by the United States fire services as a management method for clarifying command relationships and making effective use of mutual aid for large-scale incidents involving multiple authorities. Although originally developed to address fires, the IMS concept is now applied to many other types of emergency events or incidents, including pollution response.

Experience has demonstrated the value of integrating incident response functions and resources into a single operational organization, managed and supported by one command structure and supporting processes. Experience has also shown that the incident response organization is most successful when the following key organizational concepts and principles are applied:

- Use of a single, integrated organization to manage the response
- Organization by function, i.e. command, operations, planning, logistics, finance
- Establishment of clear, hierarchical reporting relationships
- Maintaining a modular, flexible and scalable organization, and ensuring that it is appropriately sized to achieve the response objectives

Command structure
An IMS requires that one or more individuals maintain authority over all incident activities. This position is known as the Command function. For small incidents a single person, called the Incident Commander, can typically perform the Command function. For large incidents, the positions of Deputy Incident Commander and Command Staff Officers may be assigned to support the Incident Commander.

Once command has been established, the IMS provides clear rules for the transfer of command to another individual or individuals. The IMS organization is characterized by an orderly line of authority, termed the chain of command. The IMS is also characterized by the concept of unity of command which means that every individual has one and only one designated supervisor to whom that individual reports at the incident scene. These principles clarify reporting relationships and eliminate the confusion that might otherwise be caused by multiple, conflicting directives.

Scalability
A key feature of an IMS is its modular organization. Organizational elements (termed Sections, Branches, Divisions, Groups, Units, etc.) are added to the IMS structure as additional personnel and new functions and capabilities are brought into the incident response and assigned to the various organizational elements. A modular approach allows the response organization to be structured in a way that is appropriate for the size and complexity of the incident. It also allows the organization to expand as the complexity of the incident increases, and as functional responsibilities are delegated throughout the organization by the Incident Commander.

The IMS structure always begins with establishing the Command function. For the management of major incidents, four functional sections are established under the Incident Commander as appropriate, i.e. Operations, Planning, Logistics, and Finance/Administration. Span-of-control recommendations are followed closely as the response organization expands or contracts, so that the organizational structure is never larger than required. However, when state agencies operate under different command structures there is a need for flexibility and adaptability in the approach taken.

Management principles

IMS management principles provide Command with guidelines to coordinate the efforts of the organization so that response objectives and priorities can be accomplished through the efficient and effective use of the available resources. Management includes operational planning and organization, staffing, and leading, directing and controlling the organization.

An IMS is based on the following management principles:
- Ensuring an objectives-driven response
- Formulation of an Incident Action Plan
- Use of common and consistent terminology
- Maintaining a manageable span of control
- Coordination of equipment, personnel resources and communication

Objectives-driven response
An effective and successful response requires a clear set of objectives. These objectives are established by the centralized Command and cascaded throughout the organization. The objectives drive the development of response strategies, which are then implemented through the tactical decisions and actions taken in the field. The objectives, strategies and tactics evolve as the response progresses.

Objectives are succinct statements of Command's overall goals and intents for the response. The objectives describe the intended outcomes and should encompass the totality of the response. For example, an objective may be: *'Minimize impacts on environmentally sensitive areas.'* Objectives should be based on the 'SMART' principle, i.e. they should be:
- Specific
- Measurable
- Action oriented
- Realistic
- Timely

Strategies describe the response methodologies to be employed to achieve the objectives of the response. Each objective should be matched with at least one specific strategy. An example strategy may be: *'Prevent oil from reaching Pristine Bay.'* It should be noted that objectives must also remain flexible. Should the objective not be met, processes should be in place to review and reset the objectives to take account of lessons learned as the incident unfolds.

Tactics are specific actions and activities required to implement the response strategies. Work assignments are developed for the various tactics, and are assigned to individuals or teams. An example tactic may be: *'Offshore Mechanical Recovery Group to use vessel* Clean Responder *to set 500 m of ocean boom between land points A and B at 0600 GMT.'*

Incident Action Plan
An Incident Action Plan (IAP) controlling all response activities for a specified period of time ensures that all responders and response organizations work in coordination and towards the same goal. A written IAP is recommended to ensure accountability, clarity and to act as a log of decisions. An Incident Action Plan describes the overall objectives and strategies for managing the response, as well as response tactics, for a set length of time known as the operational period.

If the incident is overseen or controlled by a government agency or organization that does not use IAP, the industry can use recommended IAP content to cross-check that all required elements of incident management are addressed.

Common and consistent terminology
An IMS employs common terminology used to prevent misunderstandings when responding to an event. Common terms allow diverse organizations to work together effectively, and to communicate clearly with each other on essential components such as:

- Organizational functions: all major functions and functional organizational elements are named and defined. The terminology used for each organizational element is standard and consistent.
- Resource descriptions: major resources (personnel, equipment and supply items) are given common names and are listed according to capabilities.
- Incident facilities: facilities used during the response are named according to common terminology.

- Position titles: all IMS managers and supervisors are referred to by standardized titles, such as Officer, Chief, Director, Supervisor or Leader.

If government agencies or other key organizations are not using IMS, efforts should be made to map functions and terminology between systems, i.e. when the industry is adapting to the government framework during the development of contingency plans.

Manageable span of control
Span of control refers to the number of individuals or resources than can be effectively managed by a supervisor during an incident. A recommended span of control should range from three to seven individuals, with five representing the optimal level. There may be exceptions to this range and the complexity of the tasks being supervised will affect this, e.g. in cases of lower-risk assignments, assignments where resources work in proximity to each other, or assignments requiring minimal direct supervision.

Coordination of equipment, personnel resources and communications
Comprehensive and centralized resource coordination helps to maintain an accurate and up-to-date picture of the personnel, teams, equipment, supplies and facilities in use, available or potentially available for assignment. Integrated communications requires the use of a common plan to coordinate the communications processes of the responding organizations. This approach strengthens the links between the operational and support personnel within the various parties involved in the response, and helps to maintain communications, coordination and discipline.

For more complex or larger scale incidents, a Common Operating Picture (COP) can be an important tool to assist with communication and coordination across an IMS. A COP may be defined as: *A Common Operating Picture is a computing platform based on geographic information system (GIS) technology that provides a single source of data and information for situational awareness, coordination, communication and data archival to support emergency management and response personnel and other stakeholders involved in or affected by an incident.*

Organizational structure

This section describes the organizational levels of the IMS. It focuses on their functional definition, distinguishing characteristics and relationship to other elements in the structure.
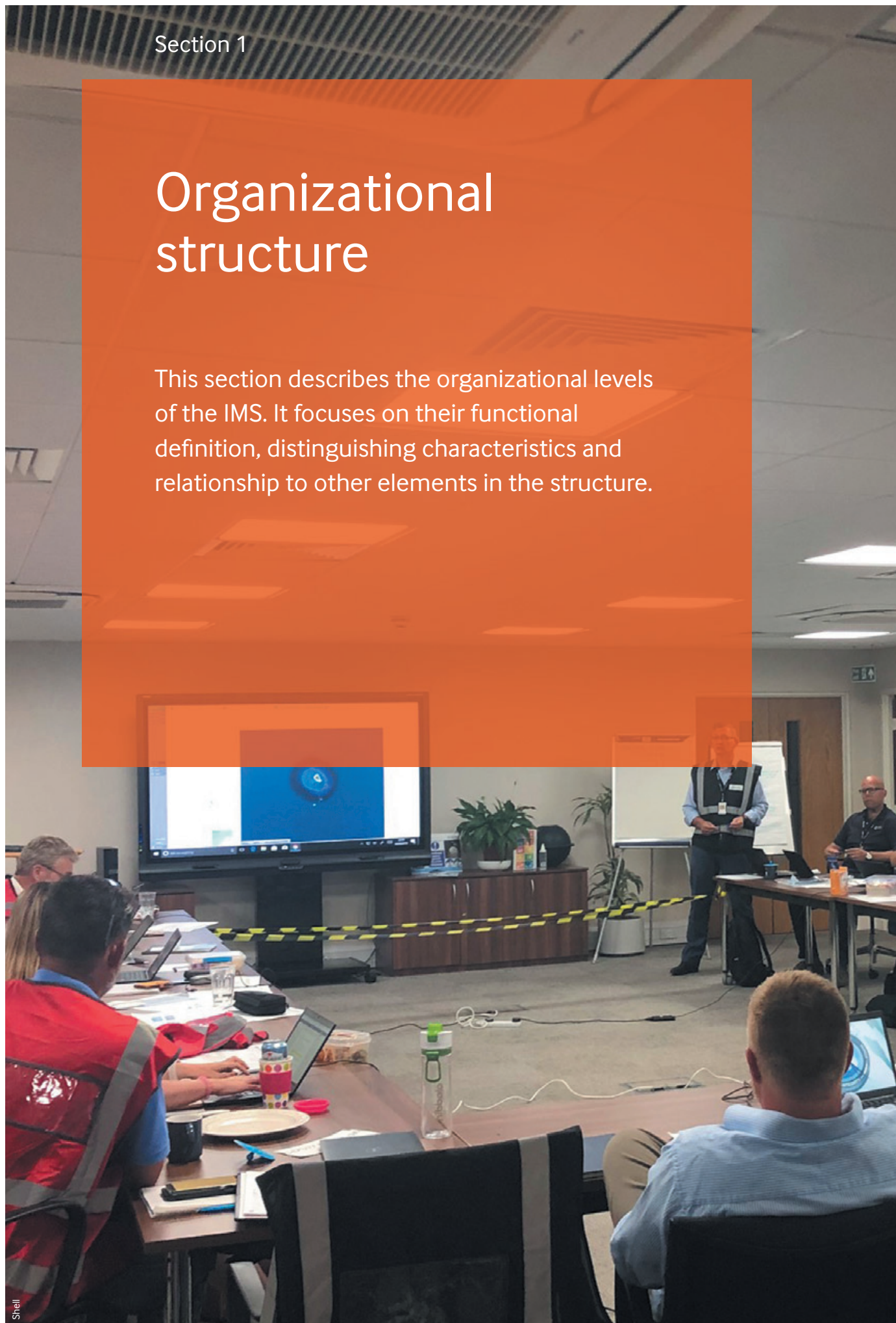
Organizational structure

This section provides a summary of the organizational structure of an IMS, and its major positions and organizational elements throughout the life cycle of an incident. It describes the organizational levels of the IMS, focusing on their functional definition, distinguishing characteristics and relationship to other elements in the structure. For further information see Annex 1, and full details about the roles, responsibilities and functional elements within the IMS structure may be found in OSRL, 2012.

Functional structure

The organizational structure of an IMS includes four major sections under the Command function: Operations, Planning, Logistics and Finance/Administration (Figure 2). This structure is often referred to an Incident Management Team (IMT).

Command represents the first organizational element established for any incident. The size of the IMT that develops under the Command function depends on the number, type and scope of operations being conducted, and the types of support functions required.

The vast majority of incidents require only a small IMT, often consisting of an Incident Commander supervising a few resources. For small incidents, a simplified IMT is typically used, without establishing sections. Full deployment of the IMS functional structure is rare and generally reserved for large, complex incidents that require a large IMT to meet span- of-control guidelines.

The IMT can be expanded as needed in a modular fashion. Command initially has full responsibility for managing the incident, including safety of the responders and the public, and also performs the duties normally carried out by the various Sections unless or until those Sections are formed. As additional organizational elements are added, the newly appointed Chiefs or Directors are assigned management responsibilities by Command. In a major or complex incident being managed under a large IMT, 'Deputies' or 'Assistants' may be appointed to support key leadership roles. Deputies generally have the same qualifications as the leaders they support. The various organizational elements and the titles used for the leaders of those elements are shown in Table 1 on page 10.

Figure 2: An Incident Management Team (IMT)—the organizational structure of an IMS
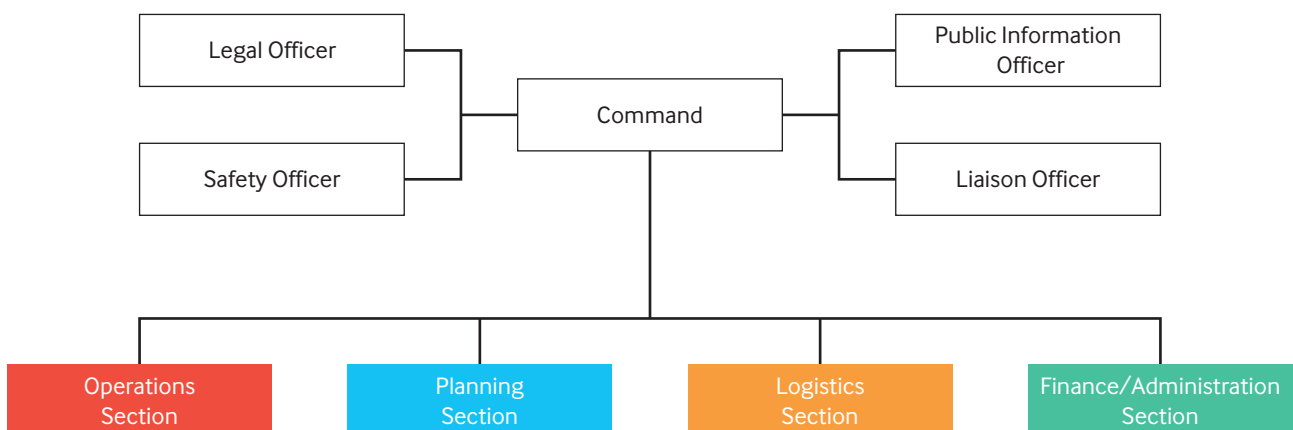
Table 1: Organizational elements and corresponding leadership titles

ORGANIZATIONAL ELEMENT	LEADERSHIP TITLE
Command	Incident Commander (and Deputy)
Command Staff	Officer (and Assistant)
General Staff (Section)	Chief (and Deputy)
Branch	Director (and Deputy)
Division/Group	Supervisor
Unit	Leader
Strike Team/Task Force	Leader

The Command function

Command represents a function, not a person. The Command function is carried out by an Incident Commander who performs the duties exclusive to the Incident Command. The Incident Commander is granted full authority to manage the response by the industry operator or the government agency with appropriate authority. For large-scale incidents, the Incident Commander is supported by Command Staff. Command Staff positions may include a Public Information Officer (PIO), Safety Officer and Liaison Officer. If required, the Incident Commander will add the IMS Sections, which are led by Chiefs. All Section staff, including the Officers and Chiefs, report directly to the Incident Commander and are known collectively as the Command and General Staff.

Command follows the principle of 'prudently over-responding' as it is easier to scale back on superfluous response reactions rather than subsequently scaling up on an insufficient response. Throughout an incident, Command determines the size of the IMT needed to respond to, and mitigate, the impacts of the incident. Command will consider the following three major priorities when identifying the required resources and structuring the IMT:

- **Safety:** protecting emergency responders, incident victims and the public
- **Incident control:** minimizing the impacts of the incident on the area surrounding the scene, and maximizing the response effort while using resources efficiently
- **Protecting the environment and property:** minimizing damage to the environment and property while achieving the objectives established for the incident

Annex 1 provides further details on the role of the Incident Commander and other Command Staff who may be needed for larger or more complex incidents.

The Incident Commander has full authority to manage the response, and, in the case of a large-scale incident, will be supported by the Command Staff.

IMS Sections

The four major Sections are shown on Figure 2; the scale of the incident will dictate the extent to which these Sections are mobilized and staffed. A summary of the Sections' responsibilities is given in the following, with further details provided in Annex 1.

Operations
The Operations Section performs tactical response operations to achieve key priorities such as safety, source control, oil spill response, fire containment and the protection of the environment and property.

Planning
The Planning Section functions to maintain resource status and situation status, address environmental issues, assist in the development of the Incident Action Plan (see *Managing an incident response using an IMS* on page 13 for details) and provide technical specialists. A central function of the Planning Section involves the collection and evaluation of operational information about the incident, including the current and forecasted situation and the status of assigned resources. This information is needed to understand the current situation, predict a probable course of incident events, and prepare alternative strategies for mitigating incident effects.

Logistics
The Logistics Section provides services and support to the incident response effort in the form of personnel, facilities and materials. This Section is responsible for immigration, importation and customs for the personnel/equipment being mobilized to support the response, and serves as the support mechanism for the IMT.

Finance/Administration
The Finance and Administration Section provides financial controls for the response, supports contracting and procurement, tracks incident costs, manages claims, and accounts for cost recovery. This Section provides tracking of all expenditures and recording of costs for response personnel, equipment and assets. Incidents often involve claims for damage to property, business disruption or other issues such as health or medical claims and the cost recovery process can continue long after the response has concluded.

Managing an incident response using an IMS

This section describes the various stages through which a response typically develops. It summarizes the key planning activities involved in implementing a response to both major and smaller incidents, and provides an example template for an Incident Action Plan.

Keng Po Leung/Dreamstime.com

Managing an incident response using an IMS

This section describes how to implement a response to an incident using an IMS, including the rare cases where escalation is required for major incidents. Regardless of the size of the incident, the response process begins with incident detection, notification and activation of response personnel and other resources, and establishment of the incident command. As the response develops, the IMT and cyclical planning process are established. The IMS planning cycle and organizational structure may be relatively simple for small incidents. The simplified planning cycle may occur every hour, or even more frequently, and the organizational structure may only comprise an Incident Commander and tactical operations personnel, for example a local facility spill response team. Invariably there will be a need to notify relevant government agencies and this may trigger the need for the integration with their emergency organization, depending of the incident's scale.

For larger, more complex incidents, the response organization will be more structured and the planning cycle more defined. The IMS drives larger incident response activities through a written Incident Action Plan which includes tactics and resource assignments to accomplish the response objectives established by the Incident Commander. The response is typically divided into operational periods and the Incident Action Plan is reviewed and revised during each operational period to reflect current objectives, strategies and response tactics to meet evolving incident conditions.

Figure 3 shows how an IMS is applied for major incidents, which are rare, and also for more common, smaller incidents.

Figure 3: Application of an IMS to the response organization and planning cycle for major and smaller incidents

The organization and planning process are scaled appropriately to match the size and complexity of the incident response.
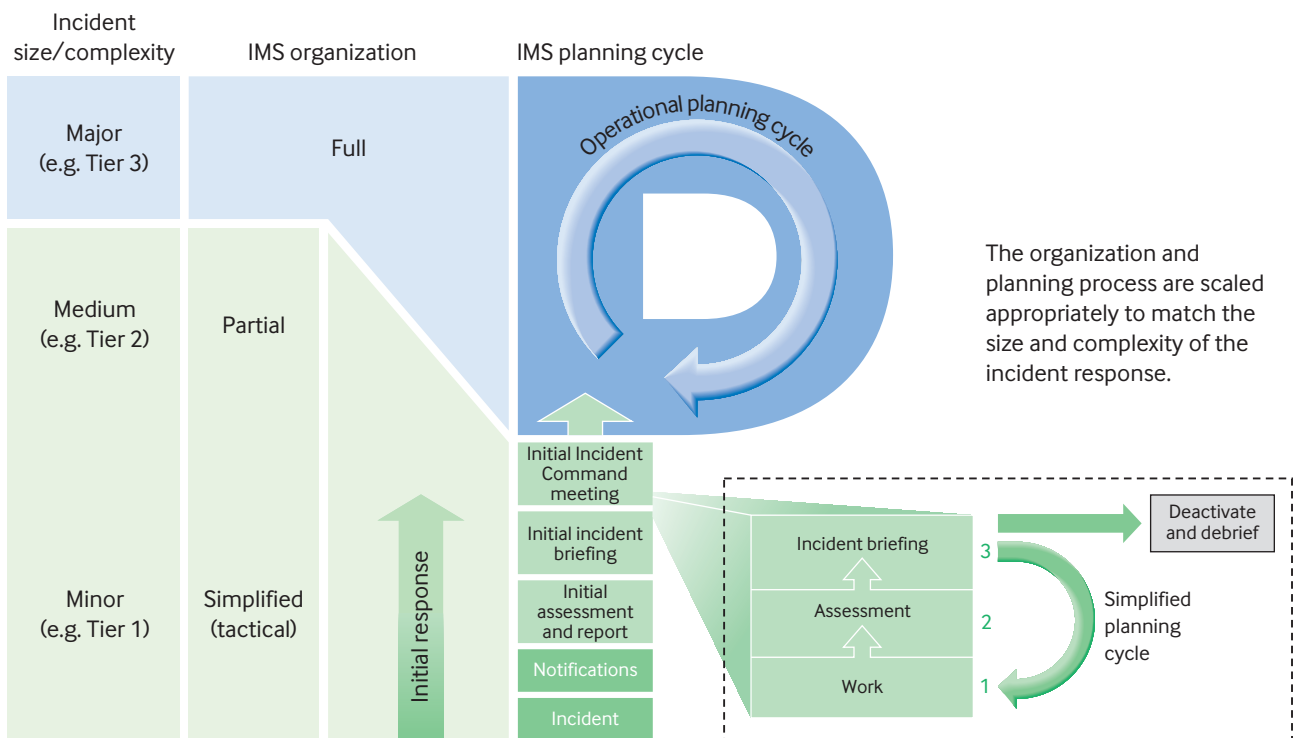
Notification and activation

Notifying the appropriate organizations that an incident has occurred is the first step in the initial response for all incidents. Notification efforts should include verification of the type of incident and its exact geographic location. Once notification has occurred, incident command is established by the first arriving responder under the procedures of the relevant contingency plan, and the responding organizations activate and dispatch qualified personnel to the response. Depending on the location of the incident, there may be country-specific notification requirements to inform governmental entities and organizations of the occurrence of the incident.

Establishing the IMT

As mentioned earlier, the philosophy of the incident command is to 'prudently over-respond' to ensure that the incident can be controlled and to be prepared for foreseeable escalation of the response. The location and type of incident govern the scope of response activities and the size of the IMT. The IMT should expand and contract throughout the incident life cycle according to the needs of the response. The Incident Commander is always the first role to be established, and organizational elements then expand from the established Command structure as needed. For small incidents, the organization may be limited to an Incident Commander and a tactical operations team. Only rarely is the full IMS structure required, and then typically for major and complex incidents. The IMT is evaluated continually, and is sized to meet incident response objectives and maintain appropriate span-of-control limits.

Factors to consider in establishing the appropriate IMT include:

- Time/date of incident
- Location of and access to the incident
- Medical assistance for injuries or fatalities
- Potential health or safety risks to the public
- Need for search and rescue operations
- Occurrence of, or potential for fire
- Volume and type of oil spilled
- Potential for environmental and socio-economic impacts
- Management issues such as human resources, legal, media, etc.

- Need for specialized expertise, such as source control
- Site security
- Changing physical conditions such as weather, oil trajectory, sea conditions and other factors
- Respective role of the State and nature of government agencies involved and role of the facility or ship owner

The two rules of thumb for managing the IMT are to:

1. Ensure that the organization develops at a pace that never constrains the level of required tactical operations and incident support activities during the operational period
2. Maintain an organization size that is fit for purpose to accomplish the incident response objectives

Initial assessment and response

The initial assessment of the response by the Incident Commander involves:

- Verifying vital information about the incident
- Ensuring that the incident scene is secure
- Conducting an assessment of the incident situation, actions taken, safety concerns, incident worst-case potential, and resources required
- Establishing an appropriate IMS structure

Initial incident briefing

The initial incident briefing covers the situation status and response activities, and typically includes a map/sketch of the incident, a summary of current actions, a chart of the current IMT, and a summary of resources ordered. Short-term responses, which are relatively small in scope and/or duration can often be coordinated using only the initial briefing. This point is a signpost for longer-term incident extends from the 'leg' into the proactive cycle of the Planning P. The initial information serves as the basis for the Incident Action Plan and may be communicated orally or in writing by the Incident Commander to other responders. The IAP may require agreement and sign off by government agencies, depending upon whether the incident commander is from the industry organization or government agency. The initial Incident Action Plan is updated for each operational period or until the incident is resolved.

The Incident Commander uses the initial incident briefing as a key step in determining the appropriate IMS structure for effectively and efficiently managing an incident. A brief command meeting is used to initiate the planning process. The Incident Commander determines and prioritizes a common set of response objectives, and may also identify the preferred associated strategies. The Incident Commander may designate an Operations Section Chief to manage tactical operations, and may fill Command Staff positions (including Safety Officer, PIO and Liaison Officer) and General Staff positions as necessary.

Topics commonly reviewed in an incident briefing include:

- Situation status—objectives, priorities, hazards and resource needs
- Situation potential, safety concerns and related issues
- Current response activities and progress
- Current organizational structure of the IMS
- Resource assignments (personnel and equipment)
- Resources en route and/or ordered
- Facilities established
- Communications established

Incident response objectives

The objectives are a succinct statement of Command's overall goals and intents for the response. Objectives describe the intended outcomes and should encompass the totality of the response. The industry generally follows a hierarchy when setting objectives:

- People: protect the health and safety of responders and the public
- Environment: protect and mitigate impacts to the environment
- Assets: protect public and industry assets from further impact
- Reputation: conduct the response in an ethical and transparent manner to preserve relationship with the community, regulators and other key stakeholders

Determine operational periods

The planning of response actions is generally divided into operational periods. The first operational period begins at the onset of an incident. It includes the immediate response actions and utilizes the industry operator's response plan to assist in guiding response priorities and directives, response strategies and actions. The initiation of the response strategies and activities may be based on a planning scenario that closely matches the actual incident, with any necessary changes being made to address the real circumstances.

For responses that last more than a day, the Incident Commander should establish operating periods for which Incident Action Plans are developed to support the response activities. Typically, operational periods are based on:

- Operational factors, including safety as the key priority
- Ability to conduct day and night operations
- Logistical constraints on shift operations within the geography of the incident
- Weather considerations
- Availability of response resources (people, equipment and supplies)

Operational periods are commonly based on a 24-hour cycle or defined by day and night, with daytime operations focused on response activities and night-time actions focused on resource mobilization and the logistics needed to support the next day's activities. For steady-state activities, which typically occur later in a response, operational periods may encompass several days.

Operational periods generally fall into one of two categories, i.e.:

- The 'current operational period'—which includes activities under way
- The 'next operational period—which includes actions being planned for the next period

Implementing the response—small to medium, or simple incidents

Most incidents are small to medium in size, not complex, and do not require a large organizational structure or operational planning cycle.

In the case of a small oil spill incident, for example at a marine terminal facility, the activation of the spill response team would be organized using a simplified IMT. The approach will be tactically and operationally focused, using only the positions and sections required to execute the facility's oil spill response plan. Direction may be given verbally or using an incident briefing document. Response actions continue until the objectives have been met, after which the team deactivates.

Daniel Sanford

Figure 4: IMT structure for a small incident
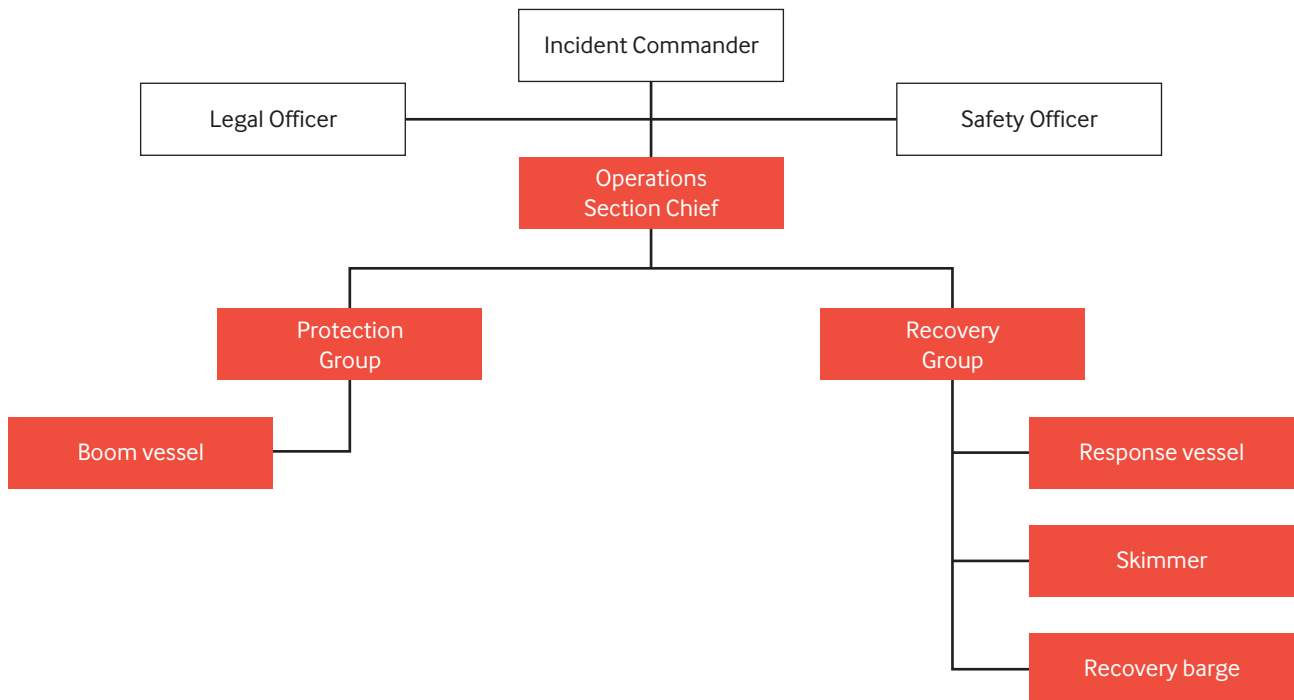
Simplified planning cycle

Small incidents are managed and directed using a simple iterative process; this involves performing response activities and assessing progress towards achieving the objectives until the response is completed and the incident command is deactivated. The simplified planning process consists of iterative cycles of work, assess and brief that can be thought of as repeating the foundational steps of the leg of the 'Planning P' in Figure 3. Figure 5 shows the typical steps of an initial incident response, and the ongoing simplified planning cycle for such an incident.

Perform work and assessment meetings

Following the initial briefing, response actions are taken which are consistent with the response objectives and the facility's response plan. Assessment meetings are then used to provide updates on the progress of the response towards meeting the objectives, and to establish the direction for the next operational period. The duration of the operational period and the frequency of assessment meetings are dictated by the pace at which the incident unfolds and the progress of the response activities.

Figure 5: Simplified planning cycle for small, medium or simple incidents
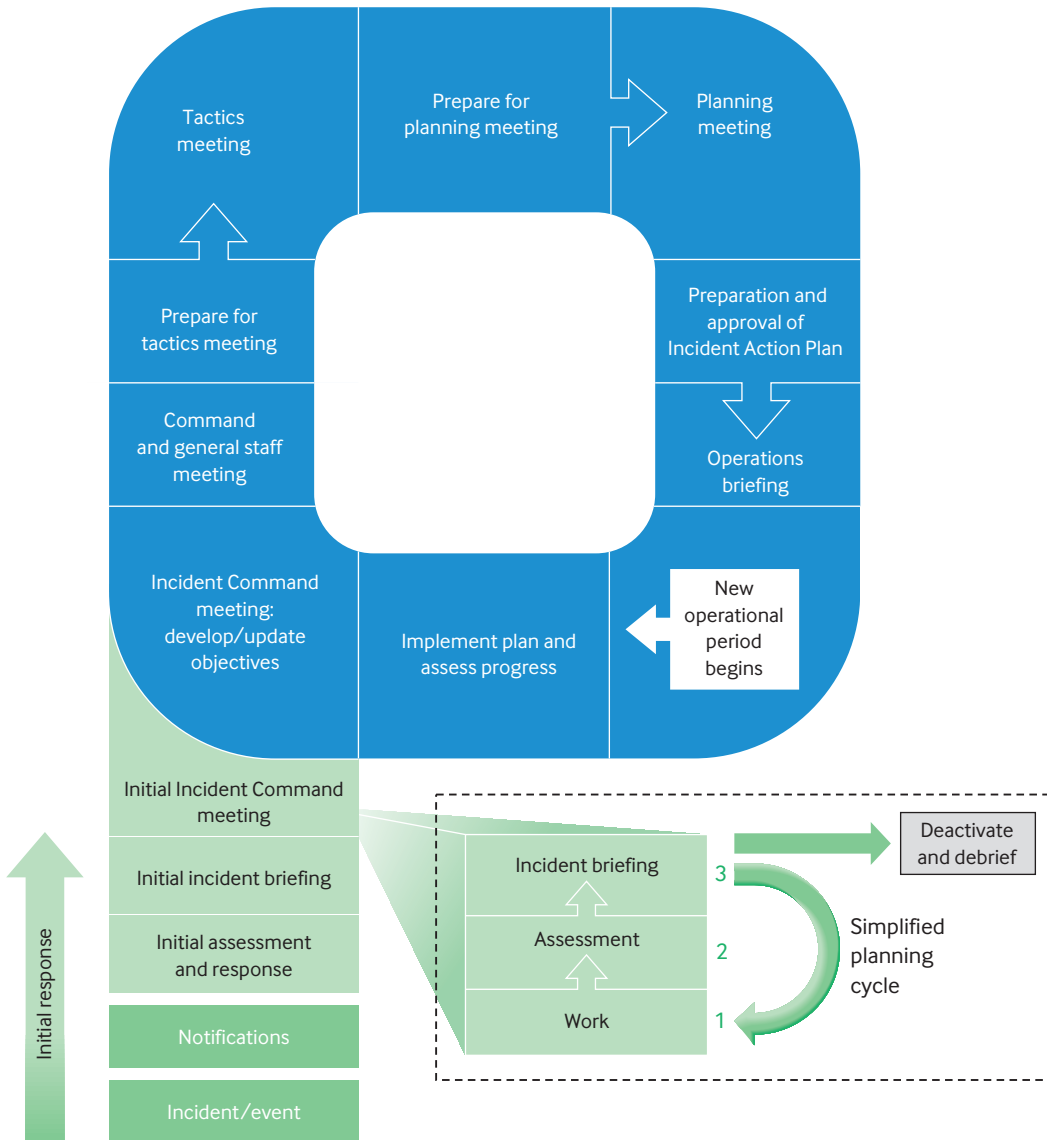
This cycle of work and assessment continues until all response objectives have been met and the incident command is deactivated, or until the incident becomes more complex and escalates into a full IMT.

Assessment meetings include:
- An incident briefing, including updates on the progress of the response
- Analysis of impacts on stakeholders
- Assessment of the worst-case scenario
- Review and update of the response objectives
- Discussion of primary and alternative response strategies
- Evaluation of resources and assistance needed

Key outputs are:
- The operations' tactics and IMS management structure for the next operational period
- Tactical and support resource requirements
- Resource availability and identification of sources for fulfilling orders for the required resources
- Need to notify stakeholders of threats and response progress

Ongoing incident briefings
Periodic incident briefings and updates to inform personnel about new information and matters of particular importance should occur frequently, based on the pace of the response throughout the operational period(s). These briefings provide the opportunity to: (1) update key staff and, in turn, all incident responders on the current incident situation and any new information; and (2) evaluate the Incident Action Plan and, if necessary, determine appropriate revisions in response to current conditions.

Deactivation and debrief
A response can be terminated when all response objectives have been met in agreement with relevant government agencies. Resources can be demobilized when they are no longer needed and as incident response activities diminish. When tactics are being considered it is appropriate to plan suitable endpoints. In this context, demobilization can be foreseen and integrated into the planning cycle at a relatively early stage. At the conclusion of every incident, a debrief meeting is held to capture lessons learned from the incident response so that response capabilities can be improved for the future.

Implementing the response—major and complex incidents

A response to a major incident may involve hundreds or even thousands of responders from multiple organizations, working in multiple locations, and carrying out a wide range of response activities—some of which may involve simultaneous operations requiring close coordination. The level of management and transactional demands required to maintain effective command and control of such a response will exceed that provided by the simplified 'assessment-based' process. A full IMT and operational planning cycle will therefore be required to manage a response of this scale. The effectiveness of the response can be further enhanced using a common IMS by all response organizations.

In a major incident, the IMT will generally include mobilization of all the Sections introduced earlier (see Figure 2). The expansion to other IMS components— i.e. Branches, Divisions, Groups and Units—and roles such as Deputies and Assistants will depend on the specific needs of the response. The IMS structure and resourcing must be sufficient to achieve the response objectives and to maintain an appropriate span of control. For longer duration incidents, the incident commander needs to anticipate and plan for rotations of qualified personnel to provide relief to the cadre of initial IMS staff.

The Command function designates a Planning Section Chief to guide the Operational Planning Process and to develop the written Incident Action Plan. As the incident management effort evolves over time, additional lead time, staff, information systems and technologies enable more detailed planning and cataloguing of events. Planning involves:
- Evaluating the situation and the progress of the response
- Developing and updating response objectives
- Developing primary and alternative response strategies
- Determining the resources needed to achieve the objectives in the safest and most effective manner

The key planning activities are summarized in Table 2 on page 19.

Table 2: Key activities of the planning process

PHASE	ACTIVITY
Evaluate the situation and progress of the response	• Gather, record, analyse and display situation and resource information • Obtain a clear picture of the scale and complexity of the incident, and assess the incident potential • Assess worst-case potential • Determine resources required to implement the Incident Action Plan
Establish and refresh incident objectives and strategy	• Formulate and prioritize response objectives • Identify, analyse and evaluate reasonable response strategies to accomplish the overall objectives of the response
Develop the Incident Action Plan	• Determine the tactical direction (i.e. how, where and when) and the resources, logistics and strategies for the next operational period • Define operational periods • Identify resource status and availability • Configure the IMT to implement tactics, and determine work assignments and specific resource requirements • As needed, develop Incident Action Plan attachments (Medical Plan, Health and Safety Plan, Communications Plan, Surveillance Plan, Waste Management Plan, etc.) • Ensure plan is agreed and signed off by parties as required
Prepare and disseminate the Incident Action Plan	• Format the Incident Action Plan in accordance with the level of complexity of the incident, and produce a well-prepared outline for an oral briefing or written plan • Obtain Incident Action Plan attachments and review for completeness and approval • Ensure the Incident Action Plan is up-to-date and complete in relation to the incident situation • Reproduce the Incident Action Plan and distribute before the start of the next operational period
Evaluate and revise the Incident Action Plan	• Compare planned progress with actual progress on a regular basis, and identify deviations or changes in resource availability, mission failure or unexpected success, and new safety and environmental considerations • Input new information and changes in the situation into the first step of the planning process as necessary to modify the Incident Action Plan for the current or subsequent operational period • Where a forward planning function has been established, use its outputs to amend the IAP at appropriate times in the incident's development • Ensure revisions to the plan are agreed and signed off by parties as required

Figure 6: Activities of the operational planning cycle by role
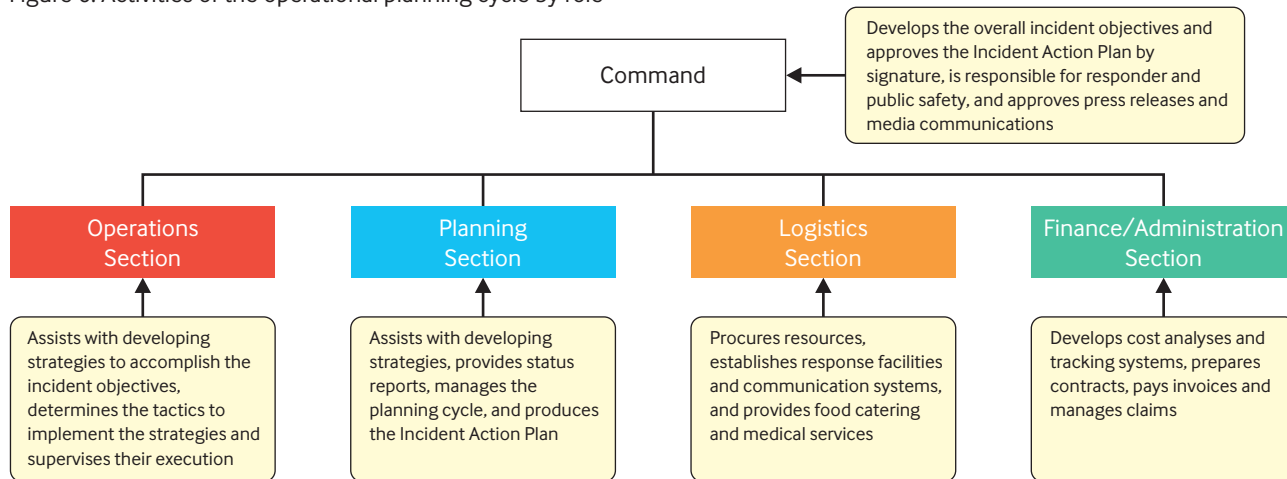
The functions of the Command and General Staff in the development of the Incident Action Plan are shown in Figure 6.

The completed and approved Incident Action Plan will specify tactics and associated personnel and equipment for the next operational period. Additional Incident Action Plan components may include, but are not limited to, the following plans:

- **Medical Plan:** provides a description and location of on-scene medical facilities, ambulances and hospitals, and details medical emergency procedures.

- **Health and Safety Plan:** specifies safety procedures, a health and safety analysis for hazardous tactical operations, personnel training requirements, medical monitoring requirements, site control measures, and an air monitoring plan as appropriate; see Ipieca-IOGP, 2023b.

- **Communications Plan:** lists the type(s) of radios in use, the function of each channel, the frequency/tone to which the radio is set, and the radio's assignment.

- **Surveillance Plan:** supports the management of a comprehensive surveillance programme, enabling good situational awareness through the collection of accurate and targeted information in a timely manner. The plan should be aligned to the response objectives and priorities, anticipate the changing needs for response over time; see Ipieca-IOGP, 2021.

- **Waste Management Plan:** specifies the potential sources and disposal routes for operational and oily wastes; see Ipieca-IOGP, 2014e.

Box 1: Example template for the content of an Incident Action Plan[1]

A written IAP may include the following:

- Incident objectives
- Response strategies (priorities and the general approach to accomplish the objectives)
- Response tactics (methods developed by Operations to achieve the objectives)
- Organization list/chart showing primary roles and relationships
- Assignment list with specific and priority tasks
- Critical situation updates and assessments, including environmental considerations
- Resource status updates
- Health and Safety Plan (to prevent responder injury or illness)
- Communications Plan (how functional areas can exchange information)
- Surveillance Plan
- Logistics Plan (e.g. procedures to support Operations with equipment, supplies, etc.)
- Incident map (i.e. map of incident scene)

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[1] A full library of useful templates, often called Forms, can be found in the *Incident Management Handbook* produced by Oil Spill Response Limited (OSRL, 2012): https://www.oilspillresponse.com/knowledge-hub/incident-management/incident-management-handbook/

The Forms as used in the USA are available from NOAA at: https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/electronic-incident-command-system-ics-forms

Operational planning cycle

The initial response to a major incident may begin with a tactical response using the assessment- based process to develop an Incident Action Plan. As the scope and complexity of the response escalates, the planning process takes on a more formalized approach, known as the Operational Planning Cycle, to develop a written Incident Action Plan that contains response objectives that reflect the overall strategy for managing the incident. This process is generally implemented when one or more of the following criteria are met:

- The breadth, scope and complexity of response activities exceeds the ability to develop and communicate tactical work assignments using a simplified planning process
- Resources from multiple response organizations are involved
- The response operations will span several operational periods
- Rotations in shifts of personnel and/or equipment are required
- There is a need to document actions and/or decisions
- Formal updates on the response are required by key stakeholders

The Operational Planning Cycle progresses through five phases to validate the accuracy of current information on the situation and resources, estimate the probable course of events, evaluate alternative strategies and develop the Incident Action Plan to be carried out during the next operational period:

1. Understand the situation
2. Establish response objectives and strategy
3. Develop the plan
4. Prepare and disseminate the plan
5. Execute, evaluate and revise the plan

Command and General Staff meeting

Planning cycle activities

The planning cycle shown in Figure 7 depicts the Operational Planning Cycle moving through a progression of planning activities to proactively respond to the incident. The planning cycle is designed to take the overall incident objectives and break them down into strategies and tactical assignments for each operational period. It is important that incident objectives establish the overall direction of the incident response, rather than having incident objectives address only a single component of the response. Operational strategies and tactics for each operational period should be directly linked to achieving those objectives.

For further details on planning activities refer to OSRL, 2012.

Figure 7: Operational planning cycle for major and complex incidents
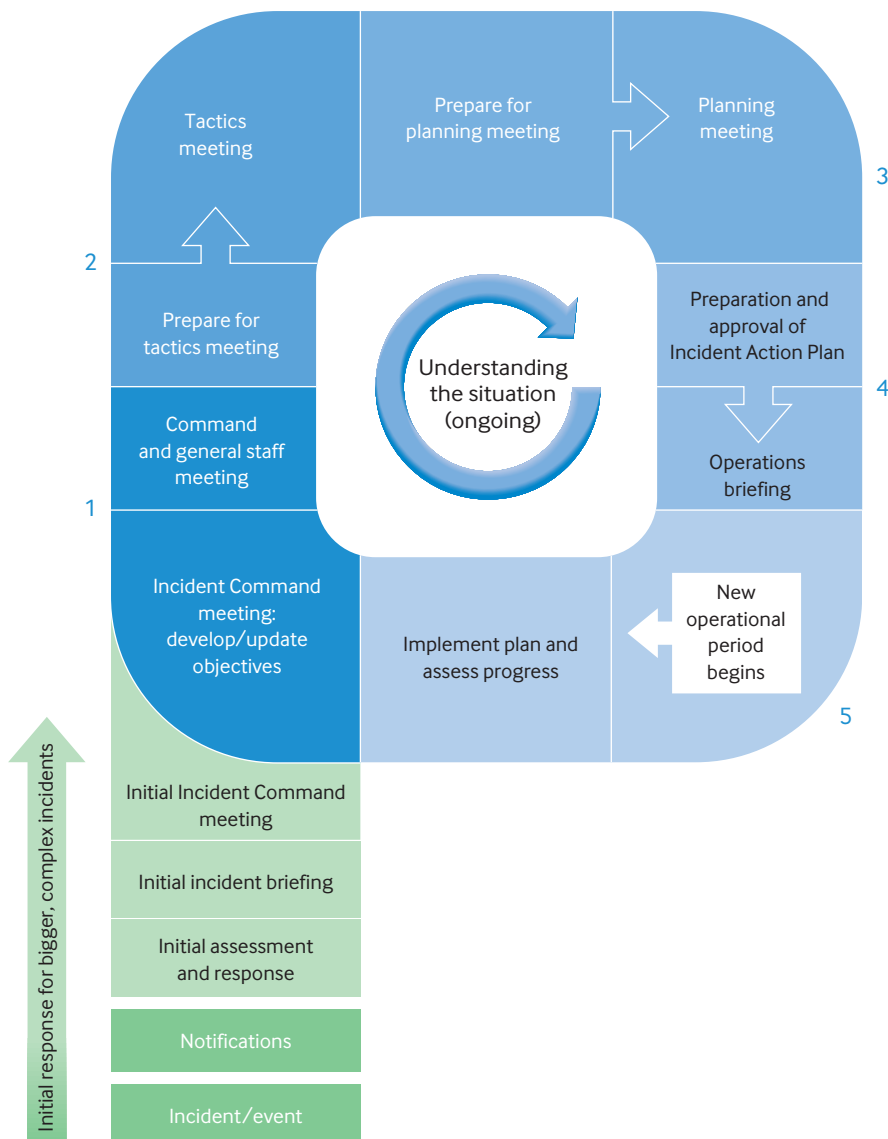
The steps of the Operational Planning Cycle are listed below:

- **Incident Command meeting:** Command establishes incident objectives that cover the next operational period of the incident.
- **Command and General Staff meeting:** Command meets with the Command and General Staff to provide immediate direction and clarification on decisions, objectives, priorities, expectations and procedures for the response.
- **Tactics meeting:** the Operations and Planning Sections review the response strategy and develop the associated tactics. This includes:
  - determining how the selected strategy will be accomplished in order to achieve the incident objectives.
  - identifying and assigning resources for each work task to implement the tactical operations, and identifying methods for monitoring the effectiveness of the tactics and resources.
- **Planning meeting:** the Command and General Staff review and validate the tactical operations plan as proposed by the Operations Section Chief. The Operations Section Chief delineates the amount and type of resources needed to accomplish the plan and coordinates these requests with the Logistics Section.
- **Incident Action Plan preparation and approval:** a written Incident Action Plan is a document that conveys the Incident Commander's intent and the Operations Section direction for the next operational period. The Incident Commander has the authority and responsibility to approve the Incident Action Plan or request modifications. Once approved, the Incident Action Plan is disseminated to the Command and General Staff in preparation for the operations briefing. It should be noted that authorizations may include inputs from various agencies e.g. for use of dispersants.
- **Operations briefing:** each operational period begins with an operations briefing where the Incident Action Plan is presented to supervisors of tactical resources. This is followed by a cascading of these assignments to field supervisors who then meet with their assigned personnel for a detailed briefing on their respective assignments.

- **Implement plan and assess progress:** the Operations Section directs the implementation of the plan. The supervisory personnel within the Operations Section are responsible for implementation of the plan for the specific operational period. The plan is evaluated at various stages in its implementation and the Operations Section Chief may make appropriate adjustments during the operational period to ensure that the objectives are met and effectiveness is assured.

Comprehensive resource management
The objective of resource management is to optimize critical resource use, safety, and resource accountability and tracking. Resource management involves the application of tools, processes, and systems that provide incident managers with timely and appropriate updates on the status of resources during an incident. Incident response resources include: (1) personnel or equipment available to perform a specific tactical operation towards accomplishing an incident strategy; and (2) supplies and facilities to support on-scene incident operations. Operations authorizes tactical resource assignments, and a Support and/or Service Branch typically orders support items (e.g. food) and facilities (e.g. equipment staging).

Optimal resource selection, deployment, and monitoring under demanding conditions necessitates systems for describing, inventorying, requesting and tracking resources over the life cycle of an incident. The establishment of such systems and procedures is the first step in resource management. Subsequent resource management steps involve dispatching resources during an incident, and deactivating resources when they are no longer needed and when the incident response is concluded.

Communications and information management

Data management may be defined as the gathering, managing, processing, distributing and archiving of information to users and across systems, when and where needed. This communications and information management represents the backbone of coordination across an IMT, enabling essential functions such as tactical planning and operations, and resource identification and assignment.

Effective data management and its communication should consider:

- Establishing a Common Operating Picture (COP) to enable a broad common (or shared) view of the overall situation, so that the Incident Command and IMS staff at all levels and authorities can make effective, consistent and timely decisions.

- Common communications and data standards: ensuring voice and data communications flow efficiently through a commonly accepted architecture using clear text and IMS terminology.

- The role of the internet and social media: this provides a potentially beneficial opportunity to engage directly with the public. It also can present significant challenges in keeping up to date with the situation on the ground, and the threat of misinformation influencing public opinion, leading to unwanted pressures on decision making. The PIO should ensure there is a social media strategy integrated within the overall external communications plan. The resources needed to monitor and engage with social media during a major incident can be significant. The potential to expand staffing within the PIO's team should recognize this.

An IMS may use various information technology (IT) tools and systems to support processes such as equipment and services procurement, internal and external communications, asset management, invoice/payments, claims and cost recovery, reporting, and so forth. Such systems are commercially available and are evolving in capability to include basic COP functionality. Integration of the COP with such systems is encouraged to facilitate information flow and simplify information management processes. However, the need to access high quality, reliable geospatial data from a variety of sources—including data that is proprietary to the oil company or its service providers—may necessitate that the COP is delivered and operated externally to these systems/tools.

Guidance on interoperability standards, designed to ensure that geospatial data can be integrated whilst applying appropriate levels of data security, are available in *Recommended practice for Common Operating Picture architecture for oil spill response* (Ipieca-IOGP, 2015).

During larger or complex, extended incidents, it may be useful to establish a Data Management Unit within the Planning Section, working in close coordination with the Operations Section, Situation Unit, Documentation Unit and Environment Unit. The Data Management Unit would develop a Data Management and Sharing Plan, with the objectives of:

- Reducing the compartmentalization and isolation of information within IMS Sections and Units

- Codifying and fully communicating the responsibilities, methods, and resources necessary to manage data

- Maintaining continuity of information over the life of the incident, regardless of personnel changes

- Providing the basis and manner for periodic review, evaluation, and, if warranted, revision, of data management processes

- Establishing the process for proper data archiving for post-incident retrieval and analyses, in accordance with organizational requirements and applicable legislation

- Ensuring robust financial records and supporting justifications for cost recovery

Forward Planning

Forward planning describes a systematic look beyond the next operational period, to identify issues or challenges that may influence the response. It poses the question 'what if?' in relation to each identified issue and assesses their significance, typically from a realistic worst-case scenario viewpoint. Outputs from this process are fed into the IMT's operational planning cycle and incorporated into the IAP or its sub plans as appropriate. This 'look ahead' function assists in expediting and transitioning the emergency response into a project management approach, by anticipating challenges and the actions needed to meet them throughout the incident.

The forward planning process has its own timeline, determined by the scale and specifics of the incident. This timeline is cyclical but typically over a longer and more flexible period compared to the operational cycle. Figure 8 illustrates the process and shows its conceptual relation to the operational cycle and the Planning 'P'. Key issues identified within forward planning may also be passed to a Crisis Management Team if there is potential for adverse business continuity implications or reputational damage.

The personnel involved in the forward planning process will vary with the scale and details of the incident but leadership typically fall to the Planning Section Chief, working in close liaison with the other Section Chiefs. In complex incidents, the tasks of implementing a forward planning cycle may be delegated to suitable personnel, such as deputy Sections Chief(s).

Figure 8: The forward planning cycle and its relation to the Planning 'P'
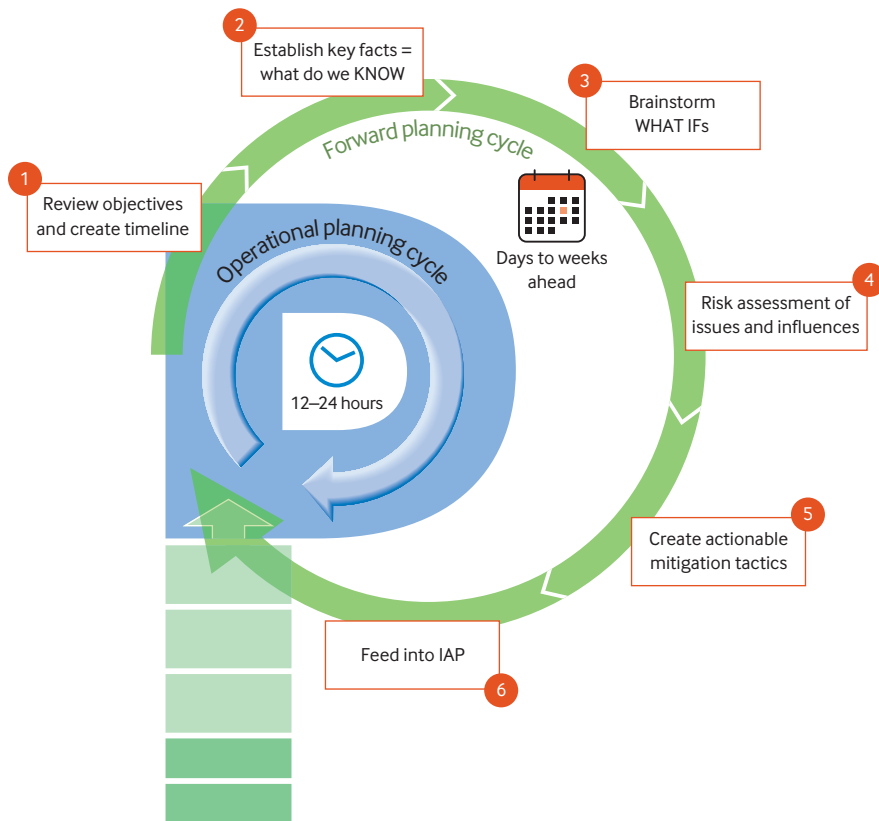
There are six steps in the forward planning cycle, as summarized in Table 3.

Further information concerning forward planning, its staffing and the supporting resources is contained in Annex 3.

Table 3: The steps in the forward planning cycle

ACTIVITY	DESCRIPTION	SUPPORTING RESOURCES
Review objectives and create timeline	Cycle commences with a meeting, which examines the incident objectives and considers a suitable timescale for the forward planning function.	Template meeting agenda
Establish key facts	The initial meeting will include a review of the incident details as known and commence the process of considering factors which may have bearing on the response beyond the next operational period.	
Brainstorm 'what ifs'	There may be a variety of operational and non-operational issues and influences to be considered. A checklist will assist, with personnel drawing on the context of the incident and knowledge of the local setting.	Checklist of potential issues and influences on the response
Risk assessment of issues	Identified and relevant issues are subjected to a risk assessment, where their potential significance to affect the response is factored with their likelihood. This priorities issues of importance, needing to be addressed in future operational planning.	Example risk matrix
Create actionable mitigation tasks	A tracker captures issues, their priority, and proposed actions to mitigate their possible impact on the response.	Example tracker
Feed into IAP	The forward planning tracked feeds in the operational planning cycle through the IAP at a time appropriate to each issue	

Application of an IMS in varying response frameworks

The response framework under which an incident is managed will vary between countries around the world. This section presents three models under which an incident may typically be managed depending on the size of the response required and the country in which the incident takes place.

Igor Akimov/Dreamstime.com
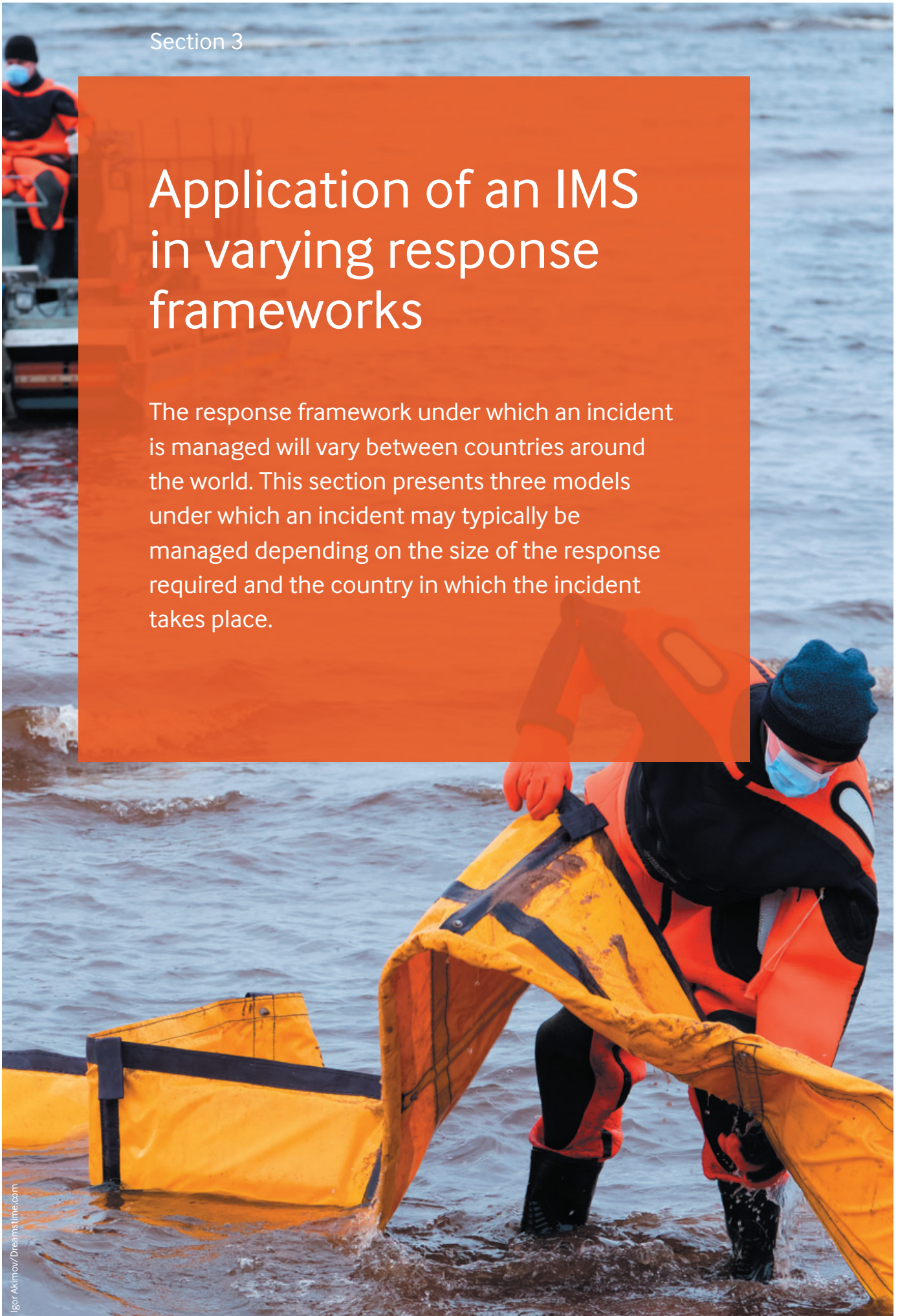
Application of an IMS in varying response frameworks

The response framework under which incidents are managed varies around the globe. While industry must always be prepared to respond to emergencies using a proven and effective IMS, in certain locations industry must adapt to, and align with, the incident management system in that country.

In broad terms, there are three models under which incidents may be managed, and their application will depend on the size of the response and the country where the incident occurs. The three models are defined as:

- Single Command
- Coordinated Command
- Unified Command

Single Command

Nearly all small incidents, and many medium incidents, are managed directly by the industry operator using their own response team and support contractors. Generally, the response is conducted using a fit-for-purpose IMS structure, and uses the planning process described in the section entitled *Managing an incident response using an IMS* (page 13). In some circumstances, government authorities may allow the industry operator to manage major incidents under the Single Command approach with the appropriate oversight.

Figure 9: The Single Command structure
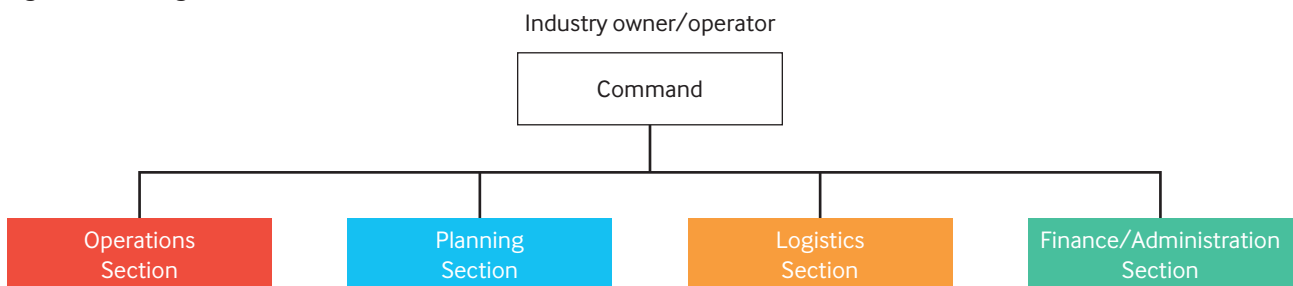
Coordinated Command

This model is commonly used where government and the industry operator are responding in parallel to an incident. Coordination of activities and alignment in decision making is achieved through close liaison between command posts, and is facilitated by competent individuals authorized to represent their respective organizations.

A government may be organized using an IMS structure that includes operations, planning and logistics sections, as illustrated in Figure 10. This incident management structure is recommended in ISO emergency management guidance (ISO 2018). Furthermore, the IMO's published guidance promotes this model and several maritime administrations or other relevant competent national authorities around the world have adopted the structure.

However, some countries may use an organizational structure and associated processes for emergency response that do not directly match the IMS as described in this document. An example is given is Figure 11.

Figure 10: The Coordinated Command structure
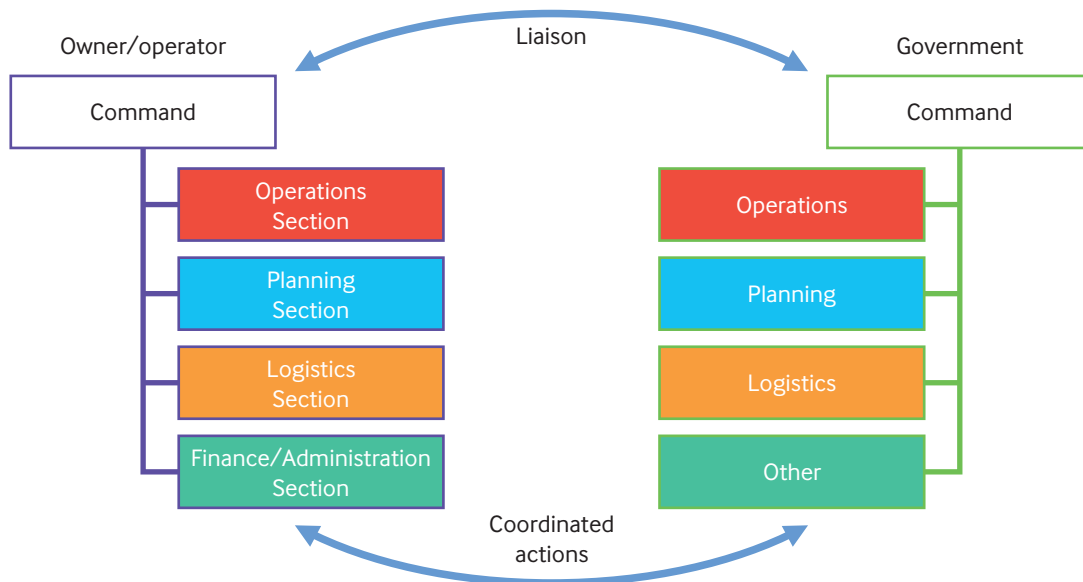
Figure 11: Coordinated Command may be more challenging where the organizational structures differ
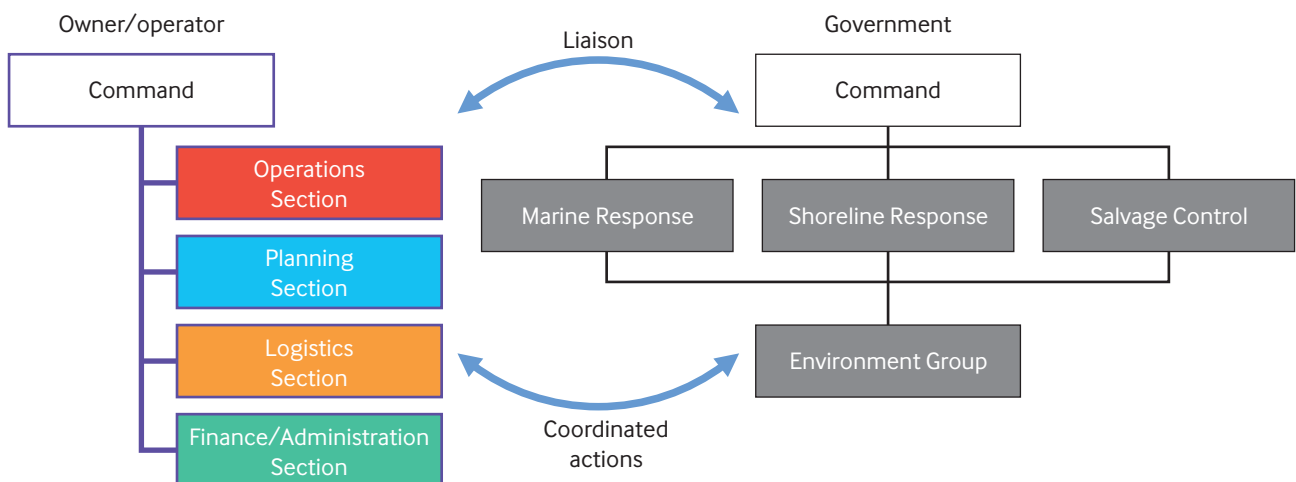
Members from government and industry attend a port tour during an oil spill response workshop involving more than 35 stakeholders.

Effective liaison between command posts is facilitated by competent individuals authorized to represent their respective organizations.

This can present challenges to achieving an integrated and coordinated response effort. These challenges are best resolved by placing a strong focus on the liaison functions and through identification of how the two emergency management systems can align. In the case of Figure 11, the Planning Section is likely to have a close liaison with the government's advisory Environment Group, while Operations and Logistics will have clear touchpoints with government's marine and shoreline response teams.

At a fundamental level, any management organizations and processes must address the same emergency issues, so it should be possible to find the opportunities for coordination and integration. The contingency planning process and associated exercising programme provides the opportunity to test coordination and ensure efficient integration. Joint exercises will build mutual understanding and potentially provide opportunities to evolve towards a common IMS, through sharing practices. The development of Incident Action Plan and the use of a Common Operating Picture are areas where a shared approach may be possible.

Unified Command

The Unified Command model is used in responses where the government and the industry operator form a joint Command, and manage the response under a fully integrated IMS structure operating under a single Incident Action Plan. The staffing of a Unified Command may vary depending on the availability of qualified personnel. In some situations it may only be practical to have a Unified Command Section with the other Sections staffed by owner/operator personnel and response contractors.

Adapting the IMS to the response framework may require consideration of a number of culturally important and pragmatic issues, including:

- Language
- Cultural norms or expectations (for example, hours of work, religious accommodation, holidays)
- Varying objectives, and priorities of stakeholders and response partners
- External reporting and liaison with multiple government ministries
- Engagement with NGOs

Figure 12: The Unified Command structure
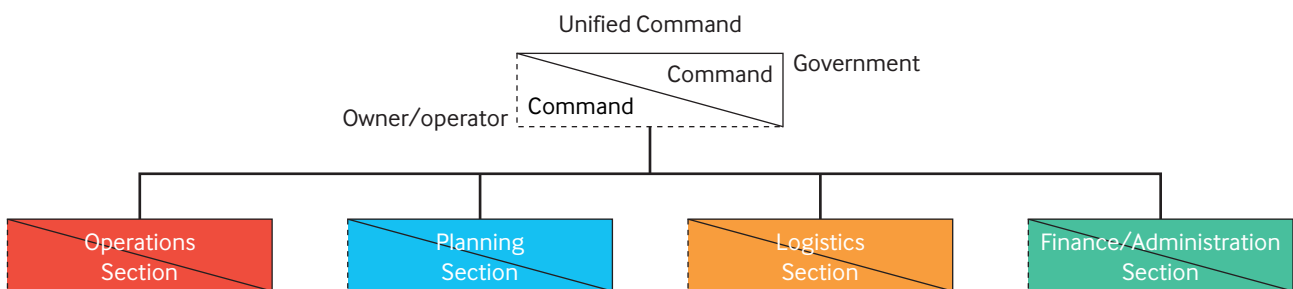
Command Staff provide updates on response activities to parties involved in the response at a Unified Command centre.

Adapting the IMS to meet response challenges

Flexibility may be needed in adapting the IMS to meet specific operational, geographic and resource challenges presented by a response. This section presents some of the aspects that may need to be considered when adapting the IMS, including the need for off-site support and virtual working in the event of a pandemic.

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Adapting the IMS to meet response challenges

In addition to the potential need to adapt the IMS framework as described in the previous section, it may also be necessary to adapt the IMS to address the specific operational, geographic and resource challenges of an incident response. These challenges need to be considered early in the response process when assessing incident potential, response strategies, and potential staffing and resource needs.

Operational response considerations

Experience has shown that time is a critical factor when responding to incidents. For example, spilled oil can quickly move to locations where it can cause environmental or societal impacts, and oil can weather over time, limiting the effectiveness of some response tools. Even one hour lost early in the response can have an impact on the length of a response, and can increase the potential for impacts on environmental and community assets.

Time is a critical factor when responding to an oil spill; even one hour lost early in a response can increase the potential for impacts on community assets and the environment.

Key response strategies, tools and logistics should be identified in advance of an incident based on proven response planning strategies and credible incident scenarios that have been tested through preparedness exercises; this is the essence of effective contingency planning. However, even with proper planning, not all factors critical to a response can be foreseen or arranged in advance. The Incident Commander will need to identify, as early as possible, any issues that may have an impact on the ability to respond in a timely fashion, and will need to work with the appropriate response organizations and government entities to address these issues.

Potential issues may include:

- Pre-approval of response strategies (such as the use of dispersants, in-situ burning, etc.):
  - Use of a Spill Impact Mitigation Assessment (SIMA)-driven decision process to determine appropriate response options
- The need to expedite access of personnel and equipment to the response site:
  - Visa and customs clearance support
  - Airspace clearance
- Additional resources or capabilities, or approval to import the required capabilities:
  - Use of aerial surveillance via helicopters, aircraft, or unmanned aerial vehicles, or satellites
  - Use of aircraft to move personnel and equipment
  - Security of response personnel
  - The need for civil authorities to limit public access to the impacted areas
  - Third-party agreements
- Volunteers and indemnification of responders
- Access to government data, e.g. on tide and currents
- Waste management

Geographic considerations

The location of the incident may require adjustments to the IMT and support functions for the response. The types of adjustments that may be required include the following:

- Coordination with multiple governmental ministries and response organizations may be required, especially for incidents that have transboundary impacts, e.g. where oil crosses country borders. An additional command post, or forward operating base, may need to be established in the second country.

- Complex source control activities may require the use of off-site technical teams to access key expertise needed to develop intervention strategies. Such expertise may include, for example, well control specialists or naval architects for vessel stability.

- In a major well control and intervention event, the size and scope of response activities may, for example, merit the establishment of a Source Control Branch under the Operations Section. Alternatively, depending on the situation, it may be necessary to create a new Section, specifically to address matters relating to source control. Further information is provided in Ipieca-IOGP, 2019, *Source control emergency response planning guide for subsea wells* and Ipieca-IOGP, 2021, *Guidance for subsea source control competency and skills*.

Off-site IMT support and virtual working

There may limitations on the ability to mobilize personnel to the location of an incident. This could be due to limited accommodation and infrastructure for responders, or restrictions on travel such as may be imposed during a pandemic. The extent of off-site IMS support may range from limited functions, such as procurement, accounting, oil spill modelling or technical specialist consultations, to the establishment of a fully virtual IMT in the extreme case. Annex 2 provides guidance on the different operating models for a physical, virtual or mixed/hybrid IMT and implementation of lessons learned from the Covid 19 pandemic.

Off-site functions require robust and reliable IT systems, raising potential challenges of ensuring communication and engagement across the IMT. Whilst personnel may have experience of virtual working, there is useful guidance for situations where some or all the IMT is conducted virtually presented in Annex 2.
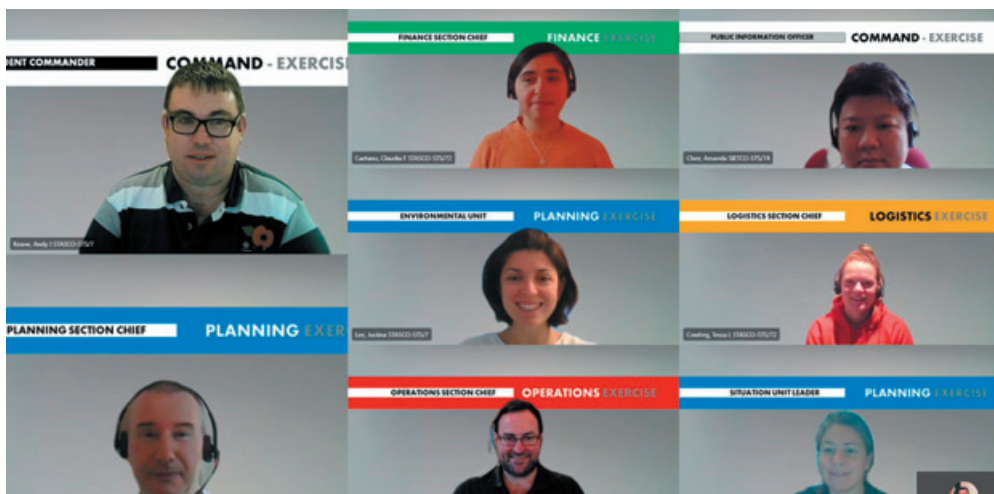
Virtual IMT elements can bring both challenges and benefits—and requires significant IT support and exercising.

Obtaining resources through mutual aid agreements

Preparedness for a response to a major incident includes assessing the availability and suitability of resources (people and equipment) that will need to be sourced, together with those that are locally available, to implement key response strategies. Depending on the incident location, size and types of response operations required, the Incident Command may request additional response assets and personnel from other operators in the region or vicinity. Conversely, in a government led response, the industry operator may be able to offer assets to the response e.g. personnel, equipment, materials, facilities, expertise etc.

To facilitate the availability of such assets, it is advantageous to have mutual aid agreements, or a Memorandum of Agreement (MOA), which should be prearranged with other industry operators in the region. Such agreements may allow for the expedited release of key equipment (surveillance aircraft, firefighting equipment, oil spill response equipment, vessels, dispersant stock, etc.) needed to quickly combat a major incident before assets can arrive from outside the region.

Additionally, an MOA may allow for the secondment of personnel from industry with key skills needed to support the response. If such MOAs are not in place at the time an incident occurs, the Incident Command may need to quickly enter into such an agreement to meet organizational, equipment or staffing needs. MOAs should be structured to address legal and liability issues, and to ensure appropriate reimbursement for expenses and assets. For further details refer to Ipieca-IOGP, 2014d. Use of a common IMS by operators can facilitate the rapid integration of personnel and assets under an MOA.

IMS competency and preparedness

Advance incident response planning and preparedness, and the use of competent response personnel, are essential for the effective application of an IMS. An overview of these aspects is presented in this section.

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IMS competency and preparedness

An effective incident response requires well-qualified and trained responders working under an IMS. For larger events this includes a properly developed and resourced incident action plan. Building IMS competency involves a combination of skills acquired through training and experiential learning from exercises or actual responses, as well as the mindset needed to perform under pressure. As with any competency, an IMS requires a sustained and long-term programme to provide practitioners with sufficient time to carry out the number and frequency of training and exercising opportunities required to build and maintain their capabilities.

Advance incident response planning and preparedness are important components for the successful application of an IMS in an incident response. The planning and coordination activities discussed in this section are part of broader advanced incident planning and preparedness process of which IMS is only a part. The doctrine of incident management is built on processes that begin long before an incident occurs, and continue after the incident response is completed.

Competency

The successful implementation of an IMS within an organization requires a commitment by senior leaders to a sustained competency development programme. Such a programme should include ongoing basic and role-specific IMS training to provide personnel with the necessary process and technical skills, and simulations or exercises that provide robust experiential learning and competency development.

A programme for implementing IMS within an organization includes:

- Sustained and visible commitment from the management.
- An organizational policy which supports the IMS.
- Availability of personnel for training and exercises on a regular basis.
- Resources for large-scale exercises.
- A budget for the programme.
- An internal 'centre of expertise' and/or subject matter experts to support the programme. Individuals who sit in emergency functions should have matching day to day roles and to have the suitable subject matter expertise.
- A robust, simple and proportionate version of an IMS at affiliate-level for managing the majority of incidents.
- A defined mechanism to move into an IMS structure including the cascading of professional responders.
- Access to additional resources/capability for large-scale/transaction-intensive incidents.
- A framework that aligns IMS with emergency, crisis, and business continuity, with as few levels and interfaces as needed for nature of organizations.

Not all members of an IMT require the same type and level of training. The type and frequency of training depends on an individual's role in the IMT and whether the role is a leadership, staff or technical position. In general, training in IMS consists of the following:

- Introductory training on IMS concepts, terminology, organization, and intermediate IMS training which includes the development of Incident Action Plans.
- Role-specific or Section-based training that covers the roles and responsibilities of a specific IMS function or Section (e.g. the Planning Section).
- Advanced IMS training, typically targeted at key IMS positions including the Incident Commander and Section Chiefs (especially the Planning Section Chief). Deputies for these positions normally have the same training as the primary officers.

Specialized training needed for specific IMS functions (e.g. resource tracking, documentation and cost recovery, leadership of the Environment Unit, etc.). Some organizations utilize software to generate Incident Action Plans, and this may also require selected individuals to be trained in its use.

First responders who provide front-line tactical response are normally trained specifically for the tasks involved. They include fire teams, search-and-rescue teams, and oil spill response teams who, for example, conduct tactical responses such as firefighting, containment booming, small-scale skimming operations, dispersant spraying from vessels, or other emergency response operations. These teams generally concentrate on the safe conduct of such tactical response operations and may receive certifications for all or part of their remit, e.g. small vessel handling, safe work practices in hazardous environments, handling of hazardous materials, first aid, etc.

Emergency response teams whose remit is to provide direction and support to the tactical response for small- to medium-sized incidents may undergo introductory and intermediate IMS training. The focus of their exercises should be on the use of simplified, assessment-based planning for emergency response, as the vast majority of incidents are small and of short duration.

Response teams with a remit for large incidents will generally progress to advanced and more specialized IMS training. The focus of their exercises will be on the

integration of the tactical response teams into the Operations Section, building up the full IMS structure and generating one or more written Incident Action Plans. Training exercises should be designed to provide the participants with the experience to role play their respective positions in the IMS structure, and to implement the IMS process to achieve command and control of the simulated incident.

Competency-based programmes can range from informal, annual training required for individual response team members, to a broad set of minimum training requirements established by an industry operator, to formalized programmes designed to track and verify the competencies of response team members to ensure that they can fulfill their specific roles in the IMS.

Preparedness

Preparedness (see Figure 13) is part of a larger response framework based on guiding principles that includes incident prevention, preparedness, rapid and coordinated response and restoration. Preparedness includes planning for credible incident scenarios, developing strategies for effective response, training response teams and resourcing appropriate supplies, equipment and personnel. Engagement of stakeholders in the planning process will better ensure an efficient and effective response if an incident should occur.

Figure 13: Preparedness as part of the response framework

A successful response depends on many factors, including well-trained personnel working to a well-developed and exercised response plan and strategy with adequate resources. Preparedness allows response organizations to identify and plan for potential incidents, including worst-case scenarios. Incorporated within the planning and preparedness process is the training and exercising of response teams. A well-prepared and well-practiced response strategy significantly increases the likelihood of an effective response operation. Additionally, incorporating the principle of tiered preparedness and response using a common IMS enables response organizations to allocate resources appropriately to facilities or regions. This in turn facilitates the escalation and integration of a response based on prior planning, if appropriate. Recognizing the fundamental requirement for an IMS, it is typically shown at the centre of the pictogram that can be used to represent tiered preparedness (see Figure 14).

The preparedness process includes the following steps:

- Identifying potential incidents and events by facility or region
- Developing plan scenarios that encompass the full range of impact and response challenges for each facility or region
- Evaluating scenarios using applicable risk management techniques
- Developing response strategies based on the planning scenarios
- Allocating resources according to the response strategies using the principles of tiered preparedness and response
- Gaining pre-approvals for response strategies, if appropriate
- Identifying communication protocols with stakeholders and government entities

Figure 14: The tiered preparedness and response model
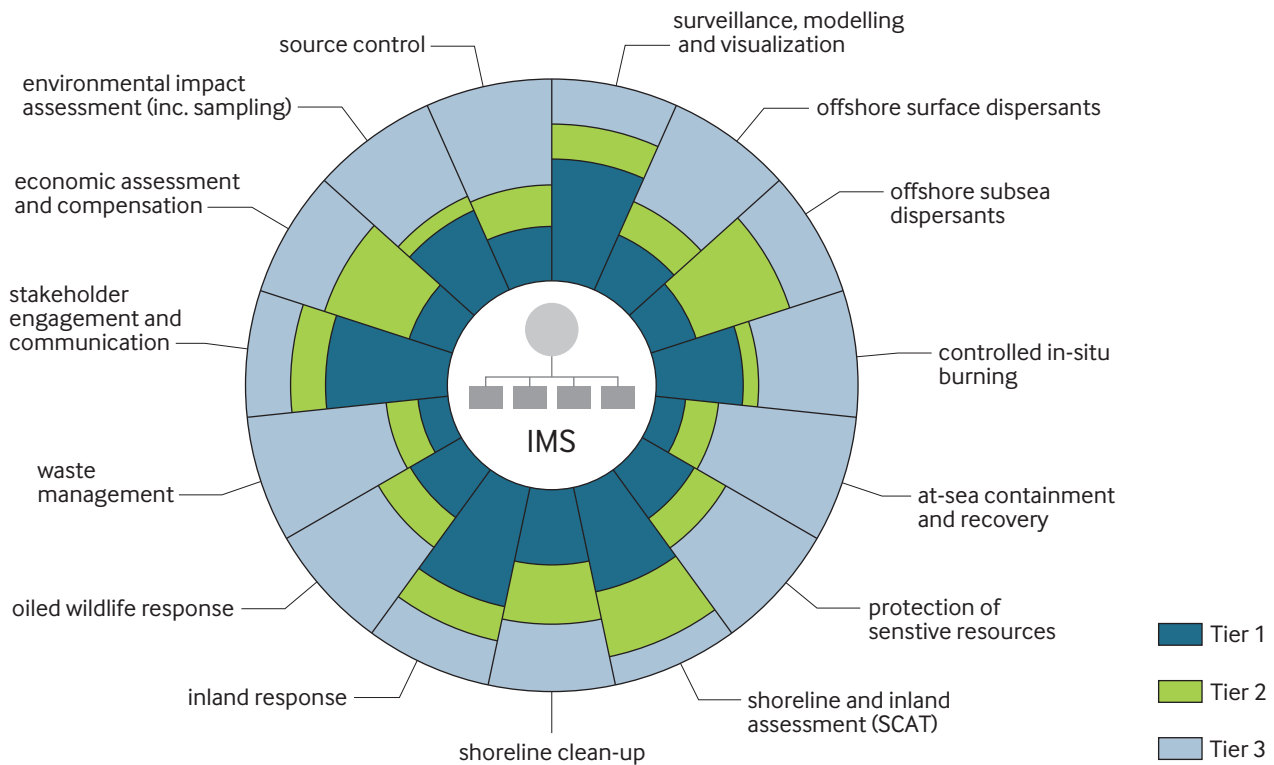
Further guidance on preparedness and training is available in the following Ipieca-IOGP good practice guides:

- *Contingency planning for oil spills on water. Good practice guidelines for the development of an effective spill response capability* (Ipieca-IOGP, 2014a), https://www.ipieca.org/resources/good-practice/contingency-planning-for-oil-spills-on-water

- *Tiered preparedness and response. Good practice guidelines for incident management and emergency response personnel* (Ipieca-IOGP, 2014b), https://www.ipieca.org/resources/good-practice/tiered-preparedness-and-response

- *Oil spill training. Good practice guidelines on the development of training programmes for incident management and emergency response personnel* (Ipieca-IOGP, 2014c), https://www.ipieca.org/resources/good-practice/oil-spill-training

- *Oil spill exercises. Good practice guidelines for the development of an effective exercise programme* (Ipieca-IOGP, 2023a), https://www.ipieca.org/resources/good-practice/oil-spill-exercises-second-edition

Further guidance is provided in *Oil spill risk assessment and response planning for offshore installations* (Ipieca-IOGP, 2013), https://www.ipieca.org/resources/awareness-briefing/oil-spill-risk-assessment-and-response-planning-for-offshore-installations/

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1. youtu.be/qPnKI59I__8
2. youtu.be/W0ZaL2D4zI0

US Federal Emergency Management Agency (FEMA) ICS Resource Center.
https://training.fema.gov/emiweb/is/icsresource/

Glossary

Glossary

Assistant	Title for those directly supporting the Command Staff positions. The title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary positions.
Branch	An organizational level below the Section level and above the Division/Group level that facilitates efficient management of multiple operational activities via geographic, functional or jurisdictional responsibility. Typically, Branches are established only for very large or complex incidents.
Chain of command	A series of command, control, executive or management positions in hierarchical order of authority.
Chief	The individual assigned to supervise a particular Section in an IMT.
Command	One of five major functional areas of an IMT that provides management and control authority.
Command Staff	Personnel assigned to, and charged with performing or supporting the duties and responsibilities of, the Command function. Command Staff include the Incident Commander or Unified Command as well as the Public Information Officer, Safety Officer and Liaison Officer.
Common Operating Picture (COP)	A single, comprehensive, display of relevant operational and planning information that provides an overall status of priorities, activities and resources. A COP facilitates collaborative planning and helps to achieve situational awareness. A COP may be in the form of status boards and/or digital information displays that are kept current by the Situation Unit.
Communications Plan	A plan used to document the communications protocols used in an incident response. The plan can include a list of the type(s) of radios in use, the function of each radio channel, the frequency/tone to which the radio is set, and the radio's assignment.
Cost Recovery	The process by which the costs of a response are recouped or reimbursed from third parties. This starts from the first moment of the response when all expenditure, decision making, meeting minutes should be recorded logically to support claims or invoices. For a shipping incident, the casualty's third party liability insurer, likely to be a P&I Club, may be liable for reasonable expenditure and losses from pollution damage.
Crisis management	Development and application of the organizational capability to deal with crises, i.e. abnormal and unstable situations that threaten the organization's strategic objectives, reputation or viability. For further reading on crisis management as it pertains to this guidance, please refer to BSI Standards Publication 11200:2014, *Crisis Management. Guidance and good practice* (2014).

Deputy	Fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff and Branch Directors.
Director	An individual assigned to supervise a particular Branch within a Section of the IMT.
Division	An organizational level of the Operations Section that partitions resources on the basis of separation in terrain, geography or fuelling locations. Divisions (or Groups) are established when the number of resources exceeds the manageable span of control of the Operations Chief.
Finance and Administration Section	One of five major functional areas of an IMT. This Section provides financial controls, contracting and procurement, claims management and reimbursements.
First responder	The first responding organization to arrive at an incident scene. These may include fire, law enforcement, emergency medical services, oil spill responders and emergency management personnel.
General Staff	Personnel assigned by Command to lead the four functional areas, or Sections, of the IMT. An individual Section leader is known as a Chief.
Group	An organizational level that partitions resources based on major operational functions. Groups are established when the number of single resources exceeds the manageable span of control.
Incident Action Plan (IAP)	An oral or written plan that describes the overall objectives and strategies for managing an incident. An Incident Action Plan may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.
Incident command post (ICP)	A facility where the Incident Command and organization is located.
Incident Commander (IC)	The ranking individual, representing the industry operator or organization with incident authority, who performs the Command function. The Incident Commander authorizes incident objectives and strategies that collectively delineate a course of action.
Incident Management System (IMS)	A systematic tool used for the command, control and coordination of emergency response. An IMS allows organizations to work together using common terminology and operating procedures controlling personnel, facilities, equipment and communications at a single incident scene. It facilitates a consistent response to any incident by employing a common organizational structure that can be expanded and contracted in a logical manner based on the level of response required.
Industry operator	Also known as the responsible party; the company or industry organization that holds responsibility for the response and other potential liabilities.
Leader	An individual assigned to supervise a particular Strike Team or Task Force within the Operations Section or a particular Unit within another Section of the IMT.

Liaison Officer	A Command Staff position consisting of a single person who acts as the on-scene contact point for representatives of assisting agencies assigned to the incident.
Logistics Section	One of five major functional areas of an IMT that functions to provide services and support to the incident response effort in the form of personnel, facilities and materials. The Logistics Section serves as the support mechanism for the IMT.
Medical Plan	A plan for an incident response that includes a description and location of on-scene medical facilities, ambulances and hospitals and may detail medical emergency procedures.
Mutual aid agreement	A written agreement between organizations and/or jurisdictions that they will assist one another on request by furnishing personnel, equipment and/or expertise in a specified manner.
Operational period	The period of time scheduled for conducting a given set of operational actions as specified in an Incident Action Plan. Operational periods can be of various lengths, but do not usually exceed 24 hours.
Operations Section	One of five major functional areas of an IMT that performs all incident tactical operations.
Planning Section	One of five major functional areas of an IMT that maintains resource status and situation status, produces the Incident Action Plan, and provides technical specialists. A central function of the Planning Section involves the collection and evaluation of operational information about the incident, including the current and forecasted situation and the status of assigned resources.
Preparedness	The range of deliberate, critical tasks and activities necessary to build, sustain and improve the operational capability to prevent, protect against, respond to and recover from incidents.
Public Information Officer	A Command Staff position consisting of a single person who has responsibility for all interaction between Command and the news media, and who coordinates the release of information on the incident situation and response efforts from Command to the media and stakeholders.
Prudent (over) Response	Refers primarily to the initial response actions, whereby the full extent of the incident or its potential to escalate is not known. In this case it can be advantageous to alert or put on standby supporting response capability in a proactive context. This can avoid delays and additional costs if the capability is needed. It may be legitimate to mobilize some capability as a precaution and subsequently stand it down if not needed—though this will depend on the incident's circumstances.
Resource	A personnel crew or equipment assigned to perform a specific tactical operation at an incident. Resources can be organized into task forces or strike teams.
Resource management	The application of tools, processes and systems for identifying available resources at all jurisdictional levels to enable the timely and unimpeded access to resources during an incident. The objective of resource management is to optimize resource use, safety, tracking and accountability.

Safety Officer	A Command Staff position consisting of a single person who has responsibility for monitoring overall on-scene safety conditions and developing measures to ensure the safety of all assigned personnel.
Section	The organizational level having responsibility for a major functional area of incident management, e.g. Operations, Planning, Logistics, Finance/Administration and Intelligence (if established).
SCAT team	Shoreline Clean-up Assessment Technique team—a group of technical specialists responsible for providing appropriate clean-up recommendations for different types of shorelines based on the degree to which they have been impacted.
SIMA (Spill Impact Mitigation Assessment)	A risk/impact analysis methodology that uses a comparative process to determine the response methods that will yield the greatest benefit with the least impact, also known as Net Environmental Benefit Analysis (NEBA).
Single Command	One of two methods of performing the Command function that involves a single Incident Commander with authority to respond to the incident.
Source control (also hazard source control)	Intervention at the point of hazard generation to reduce the probability or magnitude of an event. Includes the control or stoppage of a release of hazardous material associated with an emergency incident. In the case of a fire it may include confining or eliminating specific fuel elements to prevent the fire's expansion.
Span of control	The maximum number of individuals that one supervisor can manage effectively. Span of control should range from three to a maximum of seven, with five representing the optimum level.
Staging area	The location established to enable positioning of, and accounting for, resources not immediately assigned. A staging area may include temporary feeding, fuelling and sanitation services as necessary.
Strike team	An organizational level of the Operations Section, below the Division/Group level, that contains multiple single resources of the same kind (function) and type (performance capability).
Supervisor	An individual assigned to supervise a particular division or group within the Operations Section.
Task force	An organizational level of the Operations Section, below the Division/Group level, that contains a combination of single resources temporarily assembled for executing a specific operations mission.
Unified Command (UC)	May be used when an incident involves multiple jurisdictions and/or involves several responding organizations with shared authority to respond to incidents.
Unit	The organizational element formed under a Section with functional responsibility for a specific incident Planning, Logistics or Finance/Administration activity.
Unity of Command	The concept by which each person within an organization reports to one and only one designated person.

Annexes

Annex 1:
Organizational elements of an IMT

This Annex provides further information concerning the major positions and organizational elements of an IMT. It focuses on their functional definition, distinguishing characteristics and relationship to other elements in the structure. For additional details about the roles, responsibilities and functional elements within the IMS structure see OSRL, 2012.

Incident Commander

The Incident Commander should maintain a strategic perspective, or command awareness, to determine the potential impacts that may result from the incident, and should establish the overall incident strategy and provide clear direction for the response. Command establishes the objectives of the response, and ensures that all functional areas work to accomplish these objectives

through the Incident Action Plan. The Incident Commander may come from a number of parties including the industry organisation, a government agency or the military.

In some instances, the Incident Commander may designate a Deputy Incident Commander to perform tasks assigned by the Incident Commander, to provide relief for the Incident Commander (working in shifts), or to represent an organization providing significant assistance in the response. Personnel considered for the position of Deputy Incident Commander should have qualifications equivalent to those of the Incident Commander, and should be ready to assume the position of Incident Commander at any time. Box 2 provides an example of the typical responsibilities of the Incident Commander.

Box 2: Typical responsibilities of the Incident Commander

- Assume and announce Command
- Possess clear authority to manage the response
- Ensure incident safety
- Establish an Incident Command Post
- Establish incident response objectives and strategies to be followed
- Establish immediate priorities
- Initiate, maintain and control the communications process within the IMS organization
- Establish the size of the IMS organization needed and monitor its effectiveness
- Assess the status of the response

- Approve, implement, and evaluate the Incident Action Plan
- Coordinate activity for all Command and General Staff
- Approve requests for additional resources or for the release of resources
- Approve the use of volunteer and auxiliary personnel
- Authorize the release of information through the PIO
- Order demobilization of the incident when appropriate
- Ensure completion of incident after-action reports

Command Staff

The Command Staff perform or support the duties and responsibilities of the Command function. In less complex incidents, the Incident Commander may have sufficient time to single-handedly carry out tasks such as information dissemination, safety monitoring, coordination of participating organizations, and resource monitoring. However, as the complexity of an incident increases, the role of the Incident Commander evolves from hands-on activities to overall incident management and command. As a result, the Incident Commander may designate one or more Command Staff positions to perform various management activities; such positions may include the PIO, Safety Officer and Liaison Officer. Depending on the nature and complexity of the incident, the Incident Commander may also assign positions such as the Legal Officer, Intelligence/Security Officer and Human Resources Officer.

Figure 15: An example of Command Staff organization
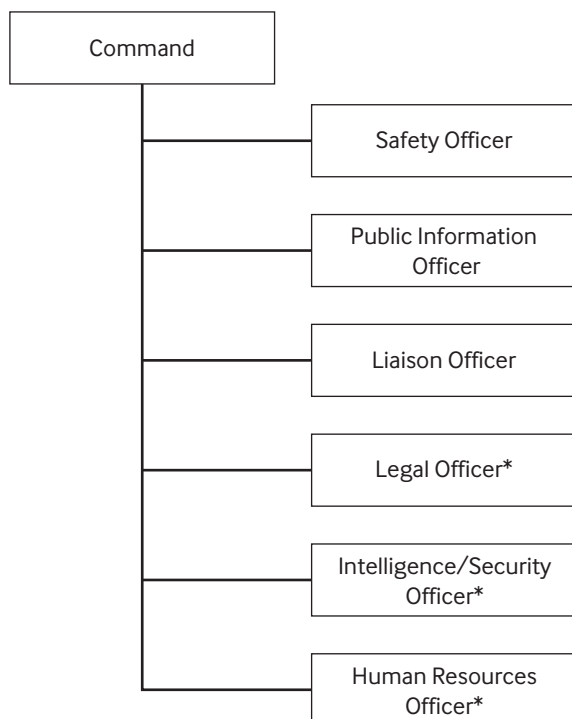
* Optional positions that may be assigned by the Incident Commander depending on the nature and complexity of the incident.

Safety Officer

Safety is the first priority for all members of the response organization, and all members are accountable for conducting their work in a safe manner. The Safety Officer has overall responsibility for monitoring on-scene safety conditions and developing measures to ensure the safety of all response personnel. The Safety Officer also anticipates hazardous and unsafe situations and has the authority to alter activities in an emergency in order to stop or prevent unsafe acts or conditions. The Safety Officer is responsible for the development of the Safety Plan and the review of the Medical Plan. The Safety Officer reviews the Incident Action Plan for safety implications, and can recommend changes to the Incident Commander as necessary. There is only one Safety Officer in the IMT, but the Safety Officer may designate assistants as needed.

Public Information Officer

The PIO is responsible for all interaction between Command, the news media and the public, and develops and coordinates the release of information on the situation and response efforts. While this function will mostly involve interaction with the news media, the PIO may also provide information to governmental agencies and other organizations if the Liaison Officer position is not activated. Commonly requested information includes:

- Key instructions for the public, including safety warnings
- Geographic location of the incident
- Estimated duration of the response
- Description of specific incident characteristics (e.g. injuries/fatalities, personnel unaccounted for, spill volume, oil type, organizations involved in the response, current situation, environmental impacts and wildlife impacts)

There is only one PIO in the IMT. However, a PIO can designate assistants who may represent other assisting organizations or stakeholders.

Liaison Officer

The Liaison Officer is the primary contact person for representatives of stakeholder organizations, typically government or community representatives. The Liaison Officer assists in establishing and coordinating inter-organizational contacts, and maintains a list of assisting organizations and corresponding representatives. There is only one Liaison Officer in the IMT, but the Liaison Officer may designate assistants as needed.

Operations Section

The Operations Section performs all tactical response operations to achieve key priorities such as safety, source control, oil spill response, fire containment and the protection of the environment and property.

Figure 16 provides an example of an organizational structure within the Operations Section hierarchy. The Section can be divided into Branches, Divisions and Groups which are collectively known as Areas of Operation. Branches can be geographic and have distinct operational boundaries, or functional (as shown in Figure 16) and able to operate anywhere. The Branches can be further divided into Divisions (geographical) or Groups (functional) such as an Aerial Surveillance Group. Resources are assigned to each Branch, Division or Group to implement the response activities. For very large incidents, multiple Divisions/Groups can be organized under multiple Branches (see Figure 17 on page 53).

The Operations Section and its organizational elements develop as required to accomplish the response objectives. Incident complexity and span-of-control considerations guide whether the Incident Commander:

1. Directly manages Divisions/Groups or Resources

2. Establishes Branches to consolidate Divisions and/or Groups for sub-management when span-of-control limits are exceeded

3. Establishes an Operations Section and delegates an Operations Section Chief (see Box 3 on page 53) who, in turn, establishes organizational elements within the section when the number of resources exceed the span of control of the Chief

Figure 16: Example of Operations Section organization
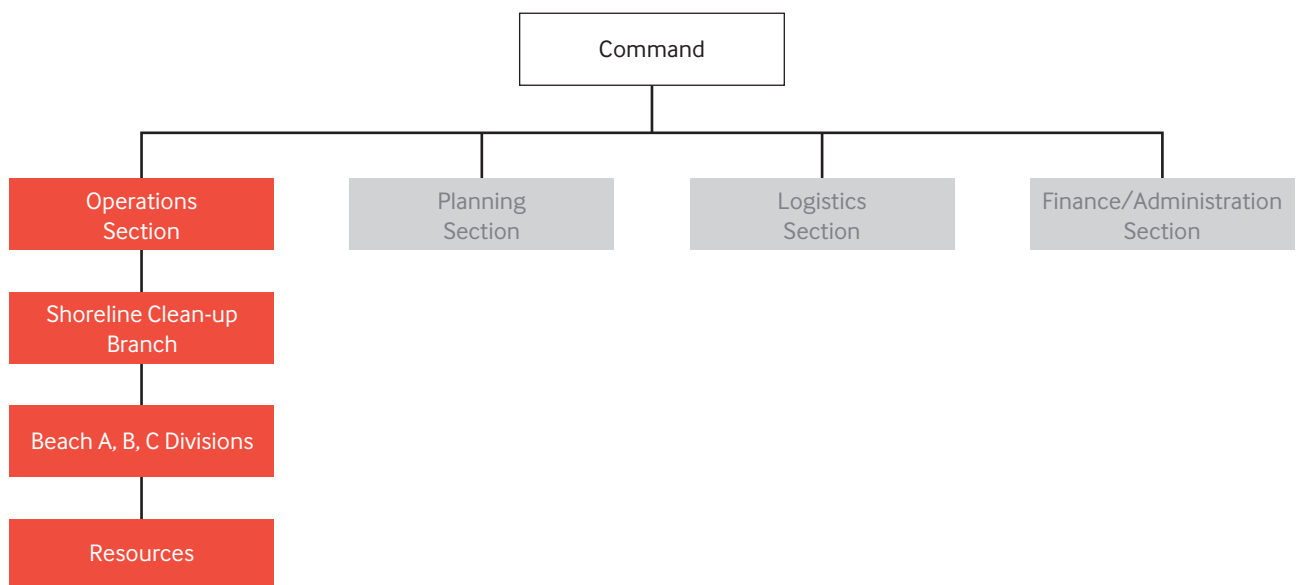
Box 3: Responsibilities of the Operations Section Chief

- Manage tactical operations
- Ensure safety of Operations Section personnel
- Assist in developing the operations response strategies and tactics of the Incident Action Plan
- Supervise the execution of the operations portion of the Incident Action Plan
- Maintain close contact with subordinate positions
- Request resources to support tactical operations through the Logistics Section

- Coordination of simultaneous operations (SimOps)
- Approve release of resources from active assignments
- Make or approve expedient changes to the Incident Action Plan as necessary
- Ensure the Operations Section operates effectively and within span-of-control limits
- Assess progress of the response
- Provide the Incident Commander with situation and resource status reports within the Operations Section

Divisions and Groups

Divisions and Groups are organizational elements that divide the response organization into geographic areas and functional areas of operation, respectively. As illustrated in Figure 17, Divisions organize response activities geographically, while Groups organize response activities based on major operations functions performed by a Group's collective resources, such as search and rescue.

An Incident Commander, Operations Section Chief or Branch Director may supervise any combination of Divisions and Groups as these organizational elements coexist on the same level within the IMS chain of command. A single Division or Group Supervisor must be assigned to manage each established division or group, and each supervisor reports directly to the next higher level supervisor in the organizational chain of command of the IMS.

Figure 17: Example of Operations Section organization including Divisions and Groups
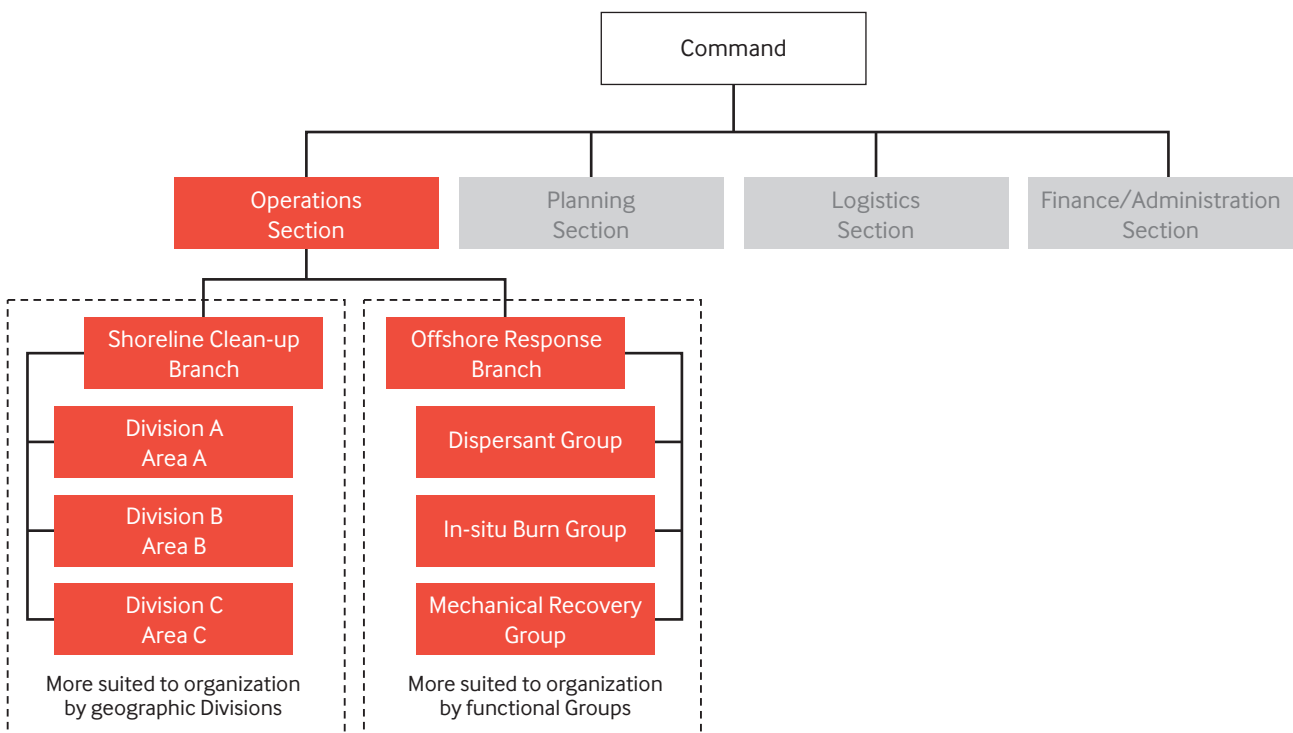
Key responsibilities of a Division or Group Supervisor include:

- Implementing the portion of the Incident Action Plan applicable to the Division or Group
- Assigning resources within the division or group
- Monitoring the progress of operational activities and resource status within the Division or Group

Divisions and Groups are appropriate organizational elements that perform specific tasks or work in specific areas at an incident. A Division manages response activities within a well-defined geographical area, for example to clean up oil that has arrived ashore on a beach. Multiple Divisions might exist to support clean-up efforts where a large shoreline has been impacted. Alternatively, a specialized service, such as the application of dispersants, can be consolidated under a single Group within the IMS structure.

Branches

The Incident Commander or Operations Section Chief may establish Branches when the number of Divisions and Groups exceeds the span-of-control limit. The Chief or Incident Commander might also establish Branches as a response to an increasingly complex incident (e.g. changing incident strategies) to facilitate efficient management of resources required for multiple operations activities. Branches are commonly organized according to geography or function, and are managed by a designated Director responsible for implementing the portion of the Incident Action Plan applicable to the Branch. An example of a situation that commonly warrants the use of IMS Branches is an incident with concurrent response activities in two or more distinct types of operations.

Resources

Resources include personnel and equipment assigned to perform tactical operations or response support functions (e.g. facilities, IT, consumables, etc.). Equipment resources also include the personnel required for equipment operation and maintenance.

Resource tracking requires that each responding resource has an assigned status condition. Standard resource status conditions include:

- **Assigned:** performing active operational function
- **Available:** ready for immediate assignment
- **Out of service:** not ready for assigned or available status because of mechanical, personnel rest, or other operational issues

Other Sections

As many as three other sections can be established within the IMT: Planning, Logistics, and Finance/Administration. In many incidents, the responsibilities of these Sections may be combined under the Command function. Many small and medium incidents do not expand beyond the creation of an Operations Section. Industry experience shows that response operations of longer duration often also require establishment of the Planning Section. Major incidents generally require the establishment of all four IMS Sections.

Planning Section

The Planning Section functions to maintain resource status and situation status, address environmental issues, assist in the development of the Incident Action Plan (see *Managing an incident response using an IMS* on page 13 for details) and provide technical specialists. A central function of the Planning Section involves the collection and evaluation of operational information about the incident, including the current and forecasted situation and the status of assigned resources. This information is needed to understand the current situation, predict a probable course of incident events, and prepare alternative strategies for mitigating incident effects.

During an incident, the Planning Section maintains an ongoing assessment of situation status and factors that can affect the response, e.g. weather, oil spill trajectory, air quality, ecological and socio-economic features at risk, and other factors. For major incidents, the Planning Section may establish a common operating picture (COP) in the form of status boards or digital information displays to provide current validated information on the response.

Figure 18: Example of Planning Section organization
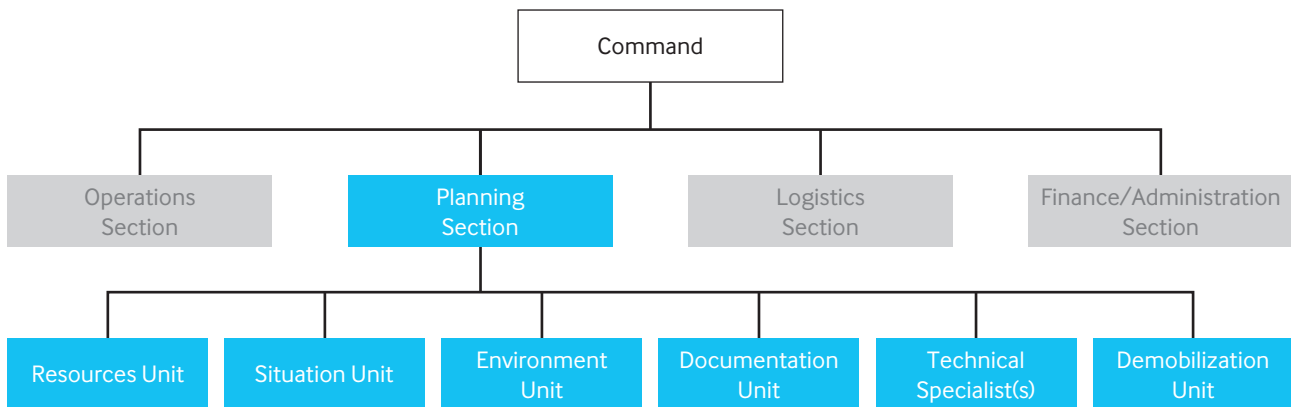
The Planning Section organization may include as many as five primary Units and various technical specialists (Figure 18). Specifically, these organizational elements are:

- Resources Unit: tracks all response resources including personnel, teams, equipment, and facilities and maintains an accurate and up-to-date status of each to provide a complete picture for planning purposes.

- Situation Unit: collects and evaluates situation information for the response. This includes both current information on actions being taken, and forecasts of future incident management activities and information (weather, tides, oil trajectories, shoreline oiling reports, etc.).

- Environment Unit: assesses potential environmental impacts of the incident and response activities, establishes environmental priorities, identifies ecological and socio-economic features at risk, advises on oiled wildlife management and sampling activities, advises the Shoreline Clean-up Assessment Technique (SCAT) team leader and shoreline response programme manager, formulates appropriate protection and mitigation strategies and clean-up techniques, SIMA and development of clean-up end points.

- Documentation Unit: manages the overall documentation for the response and develops a complete overall administrative record, including logs, files, plans, maps and records for the response. Also provides support to the Incident Command Post in generation and preservation of response documents.

- Demobilization Unit: provides planning for the demobilization of personnel and response assets consistent with the needs of the overall response.

A briefing on oil spill response operations under way at an Incident Command post.

Box 4: Responsibilities of the Planning Section Chief

- Collect and evaluate all operational data about the incident

- Provide input to the Incident Commander and Operations Section Chief in preparing the Incident Action Plan

- Supervise preparation and documentation of the Incident Action Plan

- Conduct and facilitate planning meetings

- Assign available on-scene personnel to IMS organizational positions as necessary

- Evaluate span of control within the IMS organization

- Evaluate the performance of the Incident Action Plan with the Incident Commander

- Establish information requirements and reporting schedules for resources

- Determine the need for any specialized resources in support of incident operations

- Provide the Resources Unit within the organizational structure of the Planning Section to maintain status of all assigned resources

- Assemble information on alternative strategies

- Provide periodic assessments of incident potential

- Report any significant changes in incident status

- Compile and disseminate incident status information

- Incorporate fire plans, oil spill plans, hurricane plans (etc.), medical plans, communications plans, waste management plans and other supporting material into the Incident Action Plan

- Supervise the preparation of an incident demobilization plan

In larger or more complex incidents, it may be advantageous to expand the Section to include a Data Management Unit and a Forward Planning Unit.

Technical specialists may provide support to response teams anywhere within the IMT depending on where their services are required. These specialists provide technical advice and support to address specific aspects of an incident response. Examples of technical specialists' expertise include safety, industrial hygiene, air monitoring, response techniques such as dispersant use and in-situ burning, modelling and geospatial/geomatics information. Technical specialists are typically assigned to support the Unit related to their area of specialization.

Aside from technical specialists, each identified Unit has a Leader, and that person may supervise more than one Unit.

A weather briefing takes place at a Unified Command centre prior to commencement of response activities.

Logistics Section

The Logistics Section (Figure 19) provides services and support to the incident response effort in the form of personnel, facilities and materials. It serves as the support mechanism for the IMT. The Incident Commander may establish a Logistics Section and delegate a Logistics Section Chief during complex, large-scale incidents. In addition to managing all incident logistics, the Logistics Section Chief might provide logistics input to the Incident Action Plan. Box 5 on page 58 provides a list of the major responsibilities typically assigned to the Logistics Section Chief.
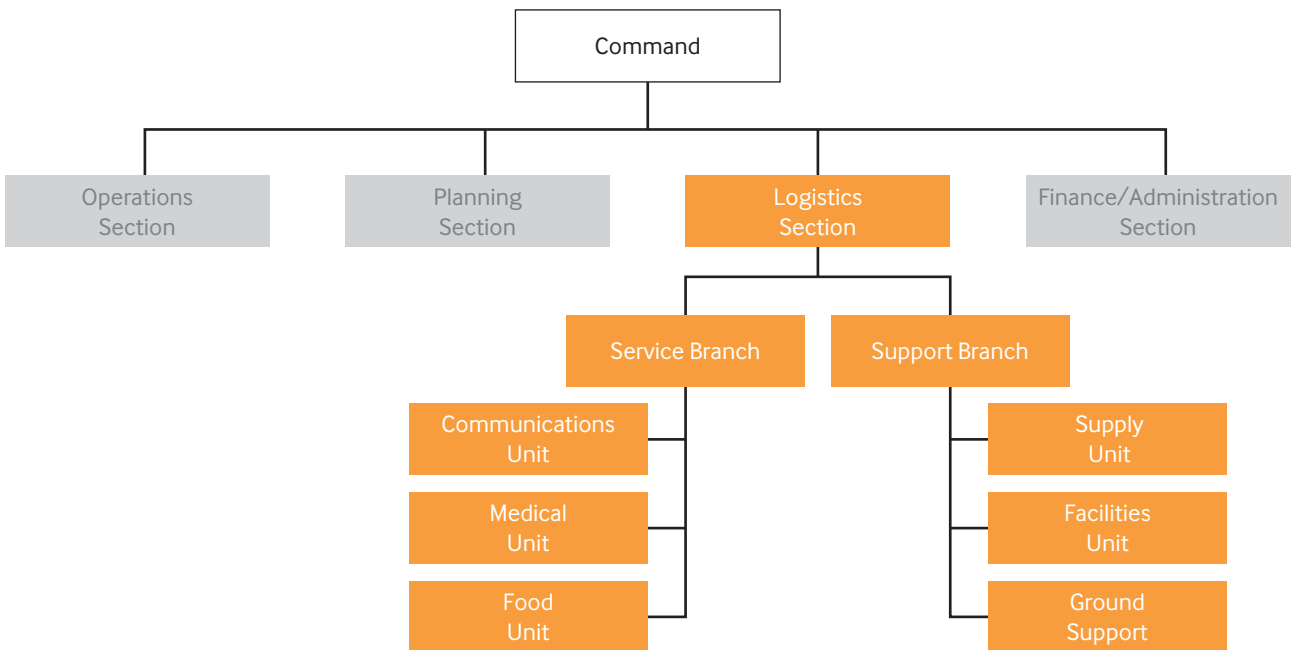
The Logistics Section organization can include as many as six primary Units, typically organized under a Service Branch and a Support Branch.

The Logistics Section supports the IMT in a variety of ways, including assessing response needs and ensuring the supply of appropriate resources.

Figure 19: Example of Logistics Section organization

Box 5: Responsibilities of the Logistics Section Chief

- Plan the organization of the Logistics Section
- Ensure the general welfare and safety of the Logistics Section
- Participate in the development of the Incident Action Plan
- Activate and supervise Branches and Units within the Logistics Section
- Assign and brief Logistics Branch Directors and Unit Leaders
- Assign work locations and preliminary work tasks to Section personnel
- Determine and supply immediate incident resource and facility needs
- Ensure that a record is maintained of all equipment, materials and supplies purchased, rented, borrowed or otherwise obtained during emergency response operations
- Work with the Staging Area Manager(s) to establish and maintain the supply network
- Develop and advise all Sections of the resource approval and requesting process

- Coordinate and process requests for additional resources
- Track resource effectiveness and make necessary adjustments
- Advise on current service and support capabilities
- Review tactics for the next operational period to provide resources and logistical support
- Identify long-term service and support requirements
- Advise Command and other Section Chiefs on resource availability to support incident needs
- Provide input to and review the Communications Plan, Medical Plan and Traffic Plan.
- Identify resource needs for incident contingencies
- Recommend resources to be demobilized, and release when appropriate
- Receive and implement applicable portions of the incident Demobilization Plan
- Monitor waste streams to ensure temporary and final storage/treatment/disposal sites are available and necessary waste licences are in place
- Manage transport of waste from collection points onwards

DVIDS

An operation to remove more than 1,700 gallons of oil and water from a grounded freighter required significant logistical support, including the supply of necessary equipment and resources such as containment booms, pumps, hazardous waste containers, transfer vessels, as well as cargo removal facilities.

The Service Branch of the Logistics Section provides all service activities at the incident and contains the following organizational elements:

- **Communications Unit:** develops plans governing all communications protocols and equipment. Unit activities include installing, testing, distributing and maintaining communications equipment.
- **Medical Unit:** develops the medical plan, and provides on-scene medical services and transportation to medical care for incident responders.
- **Food Unit:** supplies food and hydration to meet the needs of incident responders throughout the incident life cycle.

The Support Branch of the Logistics Section provides personnel, equipment, facilities and supplies to support incident operations. This branch contains the following organizational elements, each of which may be supported by assisting organizations:

- **Supply Unit:** requests resources (personnel, equipment and supplies) to support incident operations. Unit activities also include receiving, storing and distribution of incident supplies, maintaining a supply inventory, waste management and servicing supplies and equipment.

- **Facilities Unit:** identifies required facilities (e.g. equipment staging, food service, sanitation, sleeping) and provides facility management, including set-up, maintenance, security services, waste management and facility demobilization.

- **Ground Support Unit:** implements the traffic plan, provides ground transportation in support of incident operations (e.g. transporting personnel, supplies and waste), and services all mobile vehicles and tactical equipment.

Finance and Administration Section

The Finance and Administration Section (Figure 20) provides financial controls for the response, supports contracting and procurement, tracks incident costs, manages claims, and accounts for cost recovery. This Section provides tracking of all expenditures and recording of costs for response personnel, equipment and assets. Incidents often involve claims for damage to property, business disruption or other issues such as health or medical claims, which are all managed by this Section. The work of this section can continue long after the clean-up response has concluded, particularly is costs are expected to be recovered from third parties, including insurers.

Figure 20: Example of Finance/Administration Section organization
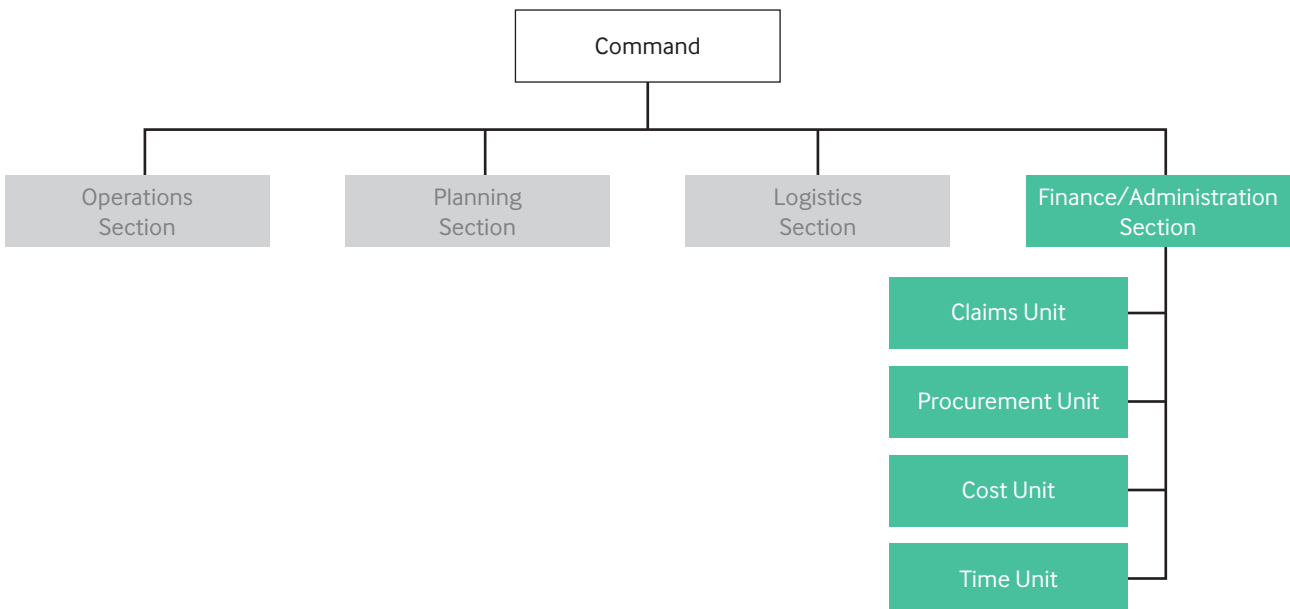
The Finance/ Administration Section manages the financial aspects of an operation, participates in the development of the Incident Action Plan, maintains personnel and equipment records, and works with the Legal Officer to process insurance and claims matters.

The Finance/Administration Section organization may include as many as four primary Units (see Figure 20 on page 59):

- **Claims Unit:** collects and compiles/evaluates all claims associated with the incident
- **Procurement Unit:** manages all financial matters related to vendors, including contracts, leases and purchase agreements
- **Cost Unit:** collects all cost data, performs cost-effectiveness analyses, and provides cost estimates and recommendations for reducing incident costs
- **Time Unit:** ensures preparation of daily personnel and equipment time recording documents and compliance with the time policy

Box 6 provides a list of the major responsibilities typically assigned to the Finance/Administration Section Chief.

Box 6: Responsibilities of the Finance/Administration Section Chief

- Manage all financial aspects of an incident
- Plan the organization of the Finance and Administration Section
- Ensure the general welfare and safety of the Finance/Administration Section
- Establish proper financial controls for the incident
- Provide incident financial and cost analysis information
- Ensure appropriate delegations of financial authority are in place
- Participate in development of the Incident Action Plan and briefings as required.
- Ensure that all personnel time records are accurately completed
- Review operational plans and provide alternatives where financially appropriate
- Oversee administration of vendor contracts, and service and equipment rental agreements
- Work with the Legal Officer on insurance coverage and exclusions, claims management processing, and approach to settlements
- Review all relevant insurance programmes and ensure notification of insurers and appointment of loss adjusters
- Provide financial input to demobilization planning

Annex 2: Operating models for physical/virtual IMTs

Where there are infrastructure or travel restrictions, it may be advantageous or necessary to establish some or all the IMT functions off-site or virtually.

There are various operating models available to achieve this, with differing levels of physical versus virtual participation. Examples are provided in Figures 21–24.

Figure 21: Physical (face-to-face only)

In-country

Source Control Task Force	Shoreline Task Force	Offshore Task Force

Incident Management Team
- Incident commander
- Public Information Officer
- Liaison Officer
- Legal Officer
- Safety Officer
- Planning Section
- Operations Section
- Logistics Section
- Finance Section

Number of staff: 10–200

☐ Face-to-face ■ Virtual interface

Figure 22: Local IMT with virtual support

In-country

Source Control Task Force	Shoreline Task Force	Offshore Task Force

Incident Management Team
- Incident Commander
- Legal Officer
- Safety Officer
- Planning Section Chief
- Operations Section Chief
- Environment Unit Lead
- Situation Unit Lead
- Liaison/virtual deputy—position that bridges face to face and virtual interface

Number of staff: 8–30

Virtual

Logistics Section	Operations Section
Environment Unit	Situation Unit
Public Information Officer	Liaison Officer
Source Control Expertise	Legal Officer
Finance Section	Claims and Compensation Expertise

Number of staff:
unlimited as far as IT systems can support

☐ Face-to-face ■ Virtual interface

Figure 23: Forward operating base with remote IMT

In-country

| Source Control Task Force | Shoreline Task Force | Offshore Task Force |

Forward Operating Base

Multiskilled operations-based response staff

Number of staff: 5–10

Virtual

Incident Management Team
- Incident Commander
- Public Information Officer
- Liaison Officer
- Legal Officer
- Safety Officer
- Planning Section
- Operations Section
- Logistics Section
- Finance Section

Number of staff: 8–50 (face to face in remote location)

| Environmental Expertise | Subsea Operations Expertise |
| Source Control Expertise | Claims and Compensation Expertise |

Face-to-face   Virtual interface

Figure 24: Fully virtual (with on-site response operations)

In-country

| Source Control Task Force | Shoreline Task Force | Offshore Task Force |

Work Assignments

Work Assignments allocated, monitored and directed by virtual staff

Virtual

Incident Command Post
- Incident Commander
- Command Staff
- General Staff

Number of staff: unlimited as far as IT systems can support

Face-to-face   Virtual interface
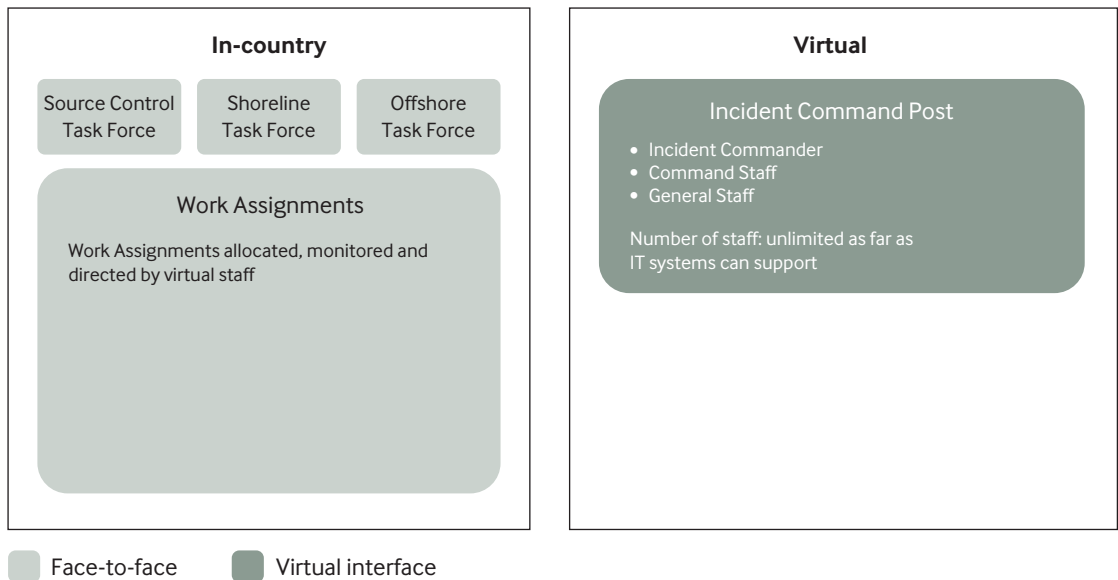
Considerations

When deciding which operating model to use, there is a need to understand the local/national government and other stakeholders' preference for the interface: face-to-face or virtual or hybrid. Consideration should be given whether to mirror that government's approach or recommend an alternative. This will depend on the circumstances and reasons driving the consideration of virtual/remote inputs.

If the government/regulators are integrating virtually it will be necessary to determine IT permissions and controls for specific channels, conference calls, systems and documentation for government officials. Similar consideration of IT approvals and access will be necessary for contractors or other stakeholders engaged with the response and the IMT.

If operating virtually the public may perceive this as disconnection, lack of interest or action due to absence of physical representation of incident management staff in country. Conversely, if operating face-to-face, the public may perceive this as reckless in situations such as pandemic, as strict travel and movement restrictions may be in place. It is advised that the rationale behind the chosen operating model is understood and communicated by the PIO.

Guidance on virtual working

Whilst personnel may have experience of virtual working, there is useful good practice guidance for situations where some or all the IMT is conducted virtually:

- Focus on the response: do not get distracted by unfamiliarity of the IT tools
- Use the agreed IT platform—try to interact in a similar way as you would have in person
- Use COP and other support software to understand the current situation and drive decisions
- Buddy-up and keep an eye on each other's well-being
- Be proactive and stay in touch with your direct line leader
- All IMT members must be clear on their roles and responsibilities—if in doubt ask
- Increase frequency of time outs and team check-ins
- Clear and understood communication protocols
- Use dedicated IT resources to help with IT challenges and questions

- Try to turn off the day job as far as possible—set work messenger status to 'busy'
- Follow etiquette when holding virtual meetings:
  - When joining a meeting, announce your arrival with a comment, hand up or verbally to ensure others know you are present and listening
  - Always have a back-up or deputy available at the meetings to step in if the main presenter's connection to the meeting is lost
  - Stay on mute when not speaking
  - Use the 'hand' or 'chat' function to ask questions
  - Create 'position backgrounds' to use behind your video—this can identify your role and Section
  - Online collaboration tools allows rapid searching for other users/roles and thereby facilitate communications

Lessons learned from operating a virtual IMT

The 2020 Coronavirus pandemic precipitated extensive use of virtual IMTs for a limited number of incident responses and numerous exercises across the industry. The lessons learned from these activities were canvassed and consolidated into a series of guidance notes as shown in Table 4 on pages 64–66.

Table 4: Challenges and solutions of virtual IMTs

ISSUE	CHALLENGES	SOLUTIONS
IT tools	- Picking the correct tool - Competency using the tools - Access both internally and externally - Corporate - Business units - Third-party contractors - Government/regulators - Integration between different software packages, including the Common Operating Picture - Information security	- Identify the potential needs to use multiple platforms to meet all IMT communication and collaboration requirements - Increase IT support within the IMT - Add an IT Support Unit - Set up training and exercises - Identify/integrate 'superusers' - Consider setting up a live IT channel within the virtual IMT - If direct access cannot be granted consider setting up liaisons who can channel information as required - Use of Subject Matter Experts to integrate or bridge the IT systems and to setup ways of working in advance - Develop security procedures to govern: - Communication format - How data should be sorted, stored, protected, and archived, by who/across different systems (document libraries, plans, spill data, chat/messaging, etc.)
Protocols	- Personnel may feel lost in the process and lack understanding of the current situation, and how to contact others in the IMT - There may be too much, or too little information - There may be lack of clarity around who is involved and fulfilling which roles - Personnel may be unfamiliar with the collaboration IT tools, and may miss meetings - Virtual approvals of plans or requisitions may not be possible or recognized as per normal controls/guidance	- Maintaining the communication tools to ensure effective flow of information; making sure that communication/collaboration tools are set up and managed properly - Develop a protocol on how to store and share information (e.g. naming convention, versioning, retention, etc.) and how to categorize/identify information - Ensure that people understand and follow the meeting schedule - Proactively managing meeting attendance: assign a dedicated role to take responsibility for this - Ensure a virtual review and approval flow process (and tool) is in place aligned with corporate and regulatory controls and requirements - Have a dedicated/designated role(s) to facilitate the IMS process in support of the Planning Section Chief - Create and communicate a clear process overview that is easy to follow and understand (e.g. use a one-pager to visualize the process)

Table 4: Challenges and solutions of virtual IMTs (continued)

ISSUE	CHALLENGES	SOLUTIONS
Additional roles	• Certain roles may become overwhelmed due to additional time required for staying on process and to orientate oneself 'virtually' • People may be unfamiliar with new IT tools being used • Using a variety of tools may hamper effective and efficient communications • Information may get lost as people may not be able to virtually follow-up on all issues at hand • Virtual functions naming convention may create confusion • Communications between the field response, physical command post and virtual command post may not be effective	• IMT Command and Section Chiefs must manage staffing, with team briefings and frequent touch points to ensure effective response communications • Avoid dual role functions especially involving virtual activity; create explicit virtual functions • IMT members may be required to take additional IT platform specific training to ensure effective system use • Protocols should be clearly communicated to IMT members • Identify 'superusers' and establish an IT help desk • Leverage key procedures (action tracker) and platforms (IAP software, Microsoft Excel and Teams Planner) to keep track of actions • Clearly define role naming to ensure no duplication with IMT based roles, e.g. virtual deputies, virtual facilitators, etc. • Physical command post may require additional staffing, and process/situational awareness facilitation to keep field response and virtual command post connected

Third party engagement	• Limitations to using certain IT tools:
	  • Access restrictions
	  • Bandwidth
	  • Field responders may have limited hardware or connectivity
	• Having to use different IT applications to interact with different parties, potentially causing lack of situational awareness
	• Lack of experience in using new/designated IT tools
	• Lack of experience in working virtually
	• Effective sharing of information and data may be more difficult, resulting in loss/lack of data, and misaligned objectives
	• Not enough time available/taken to achieve effective collaboration across organizational boundaries
		• Proactively engage third parties to align on virtual collaboration approach to be taken (during contingency planning)
		• Conduct joint virtual exercises and system tests
		• Include dedicated IT experts for support during/in between exercises and responses (training, troubleshooting, helpdesk, superusers)
		• Include dedicated virtual working facilitators to support effective collaboration across organizational boundaries

Table 4: Challenges and solutions of virtual IMTs (continued)

ISSUE	CHALLENGES	SOLUTIONS
Training	• Training may be compromised by restrictions • New members to an IMT may have challenges shadowing existing members to learn role/responsibilities	• Exercise Programme Managers to set additional, bite-size sessions (training, alignment) ahead of exercises (IMS, communication/collaboration tools, etc.) to discuss the virtual platforms and engagement

Human factors	• Monitoring and management of fatigue, stress, and wellbeing is more challenging in a virtual setting
	• Recognizing the degree of concentration needed is much higher and there is likelihood of individuals overlooking their own wellbeing compared with a face-to-face environment
	• Working from home introduces ergonomic challenges compared to office desks
	• Working from home and not being able to go outside (due to quarantine, isolation or local risk assessments) for a long period of time will affect mental/emotional health
		• Building a structure into the operational cycle to:
		  - Ensure people have time to take screen breaks (e.g. scheduled breaks) and encourage participants to use breaks to move around and avoid static position in front of a computer screen.
		  - Develop well-being management guidance.
		  - Assign a buddy system of checking in with each other or a mechanism for people to indicate if they need support. An alternative solution could be to have one person responsible for evaluating and monitoring all members of response organization. This person should report directly to Command.
		  - Encourage participants to indicate their availability/status (busy, available)—in a virtual environment it is not always apparent.

Annex 3: Forward planning and supporting materials

For larger, more complex incidents that are likely to last for extended periods the Incident Command may request the establishment of a forward planning function. This annex provides examples and guidance on how such forward planning can be addressed and integrated within the organization and procedures of an IMT.

Staffing

It is recommended that the Planning Section Chief should be the leader and owner of the forward planning process, working in close collaboration with the Operations Section Chief. Rather than the creation of a separate unit under Planning Section it is recommended that forward planning processes are typically undertaken through a standing meeting process, generating actions for Section Chiefs and Unit Leaders to address in the Incident Action Planning and its related sub-plans as appropriate. In complex incidents the Planning Section Chief may consider delegating the forward planning process to a Deputy.

Attendance at the initial forward planning meeting is recommended as follows:
- Section Chiefs (or delegated Deputies)
- Safety Officer
- Liaison Officer
- Legal Officer
- PIO
- Key Unit Leads (e.g. Environment Unit and Medical Unit)
- Potentially an Incident Command representative

For larger, longer, or higher profile accidents additional facilitators, crisis management liaison, legal, documentation, tactical/technical specialties, damage assessment and others may be invited. In the event of a protracted major incident a dedicated Forward Planning Unit in the Planning section, may be warranted.

The personnel involved in forward planning should have the time and space to brainstorm, think out of the box beyond the 24-hour operational period, into the medium and long term.

Meeting agenda

The forward planning meeting should be structured; the example agenda below can facilitate this. However, anticipating long-term influences on response requires creative brainstorming and deliberate speculation, centred on 'what if' scenarios? The duration of the meeting should reflect the complexities of the incident and allow enough time for creative thought. The initial meeting is likely to incorporate a longer session to brainstorm issues, whilst subsequent ones are likely to be shorter, with a check and update on new items.

1. Planning Section Chief (PSC) brings meeting to order, conducts roll call, covers ground rules and reviews agenda.

2. PSC or nominated person provides summary of current situation, resources at risk, weather/sea forecast and Command's incident priorities, decisions and objectives. This establishes the key facts, as currently known. It may be possible at this point to create an incident-specific timescale of short- and long-term periods for the forward planning process.

3. Brainstorm session determines the potential future influences on the response, typically from a worst-case scenario perspective. These influences or issues may be operational or non-operational, or have aspects of both. See Table 5 on page 68.

4. Cross check for issues that may be already addressed or identified within existing incident planning (such as waste, oiled wildlife, environmental monitoring and shoreline treatment sub-plans within the IAP).

5. Risk assessment (see Figure 26) and review of identified influences:
   a. Most significant influences/issues are identified.
   b. Mitigation options to address significant issues are proposed—this will identify potential operational and logistical implications.

6. Create/update a simple forward planning tracking system (e.g. Gantt chart). This will be the primary briefing tool to feed into the operational planning cycle, e.g. through that cycle's Planning meeting, ultimately leading to incorporation of actions/tasks in the IAP and its sub-plans at the appropriate time.

7. Set date of next meeting. The frequency will depend on incident specifics and vary through the event but there are typically a few days between meetings.
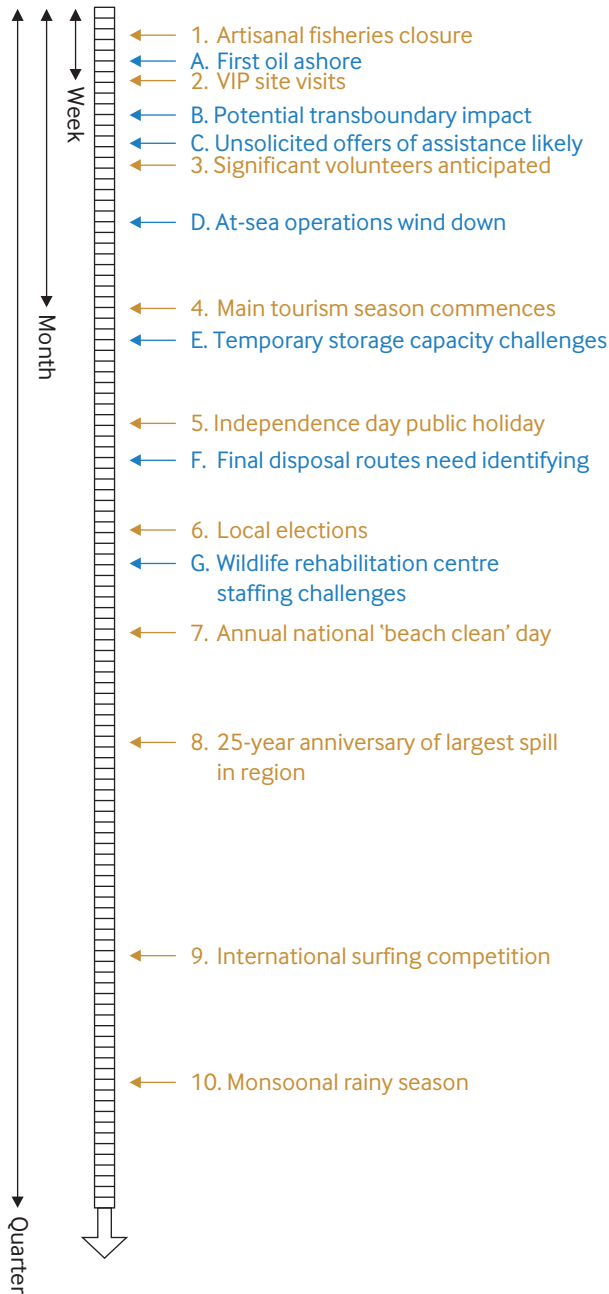
Checklist of influences

A key step in the forward planning process is the identification of potential future influences on the response. The following non-exhaustive checklist provides guidance (Table 5). It is recommended that reference is made to 15 capabilities comprising the tiered preparedness and response model when considering the details of operational issues. The list is grouped by operational, non-operational and those issues which maybe cross-cutting.

The forward planning meeting should be flexible in its approach to complement the incident specifics. Figure 25 on page 69 presents an example of operational (blue, A to G) and non-operational (brown, 1 to 10) influences identified for an incident with an estimated three-month horizon.

Table 5: Forward planning checklist for potential operational, cross cutting and non-operational influences on the response

OPERATIONAL	CROSS-CUTTING	NON-OPERATIONAL
Extreme weather event predictions or seasonal changes (e.g. hurricane, monsoon etc.)	Potential transboundary impacts	Political pressures, elections
Customs and immigration challenges for out of country assistance	Unsolicited volunteers at clean-up sites	Handling of claims submissions
Simultaneous operations (e.g. search and rescue, salvage, fire-fighting) competing for resources	Language barriers for non-local IMT members	Artisanal fisheries impacts and local community food supply
Regulatory framework constraining response	Security at command post(s) or clean-up sites—possible demonstrations	Disruption associated with planned community events (including pressure on infrastructure)
Response resources availability		Concerns around community health impacts
Logistical constraints or transportation bottlenecks		Recreational disruption
		Economic disruption, including demurrage

Figure 25: Example of operational and non-operational influences identified for an incident

← 1. Artisanal fisheries closure
← A. First oil ashore
← 2. VIP site visits

← B. Potential transboundary impact
← C. Unsolicited offers of assistance likely
← 3. Significant volunteers anticipated

← D. At-sea operations wind down

← 4. Main tourism season commences
← E. Temporary storage capacity challenges

← 5. Independence day public holiday
← F. Final disposal routes need identifying

← 6. Local elections
← G. Wildlife rehabilitation centre staffing challenges

← 7. Annual national 'beach clean' day

← 8. 25-year anniversary of largest spill in region

← 9. International surfing competition

← 10. Monsoonal rainy season

Week · Month · Quarter

Risk assessment and matrix

Each of the identified influences or issues should be subjected to a qualitative risk assessment. The issues and associated risks may change through the incident; periodic review and updating of the assessment will be needed at each forward planning meeting. Figure 26 shows an example of a simple likelihood and consequence risk matrix for the above influences.

Those influences or issues towards the top right of the matrix will warrant priority and focus when considering actions to mitigate the potential detrimental effects on the response.

Figure 26: Example of likelihood and consequence risk matrix

relative likelihood →
relative consequence →
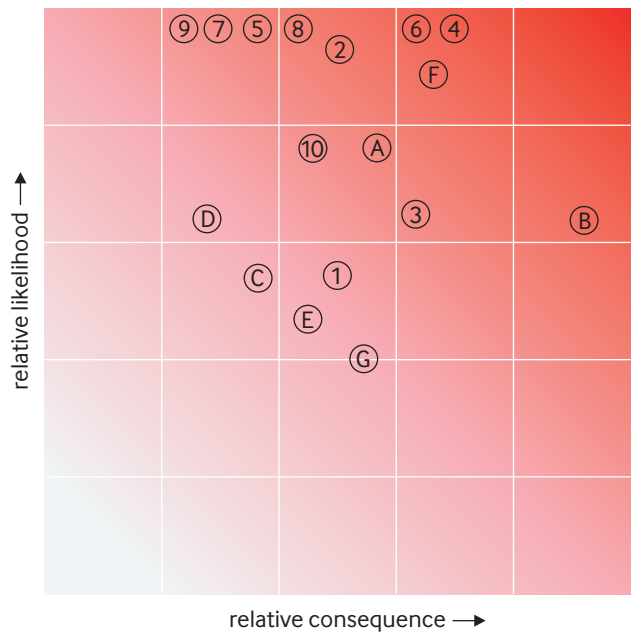
Tracking actions

A primary output from the process is a set of prioritized actions, framed at the tactical level and able to be integrated into the IAP at the appropriate time. This will help mitigate the risks on the horizon and avoid derailment or 'blind-siding' of the activities being managed through the operational planning cycle within the Planning 'P'.

The actions may be presented in a Gantt chart, providing a quick visual reference of forthcoming potential issues, which the actions address. An example is presented in Figure 27.

As actions are incorporated into the operational planning cycle at the appropriate time, they will be refined to the context of the operational period (typically 24 hours) and become part of the Action Tracker associated with the delivery of the IAP.

Figure 27: Example of a Gantt chart of forthcoming potential issues and actions to address them

Influence/issue	Week											
	1	2	3	4	5	6	7	8	9	10	11	12
Main tourism season				Prioritize key clean-up at key beaches and ensure information shared with media								
Local elections							Political pressures may result into demonstrations and security issues					
Final disposal routes						Work with regulator and ensure waste plan covers disposal routes						
Transboundary impact		Coordinate with second countries' authorities										
VIP visits	Ensure suitable sites identified with necessary logistics/security											
25-year spill anniversary								Anticipate heightened media interest/potential demonstrations				
Artisanal fisheries closure	May need to source food for affected communities											
Significant volunteers		Establish volunteer management procedures										

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Ipieca was founded at the request of the United Nations Environment Programme in 1974. Through its non-lobby and collaborative approach Ipieca remains the industry's principal channel of engagement with the UN.

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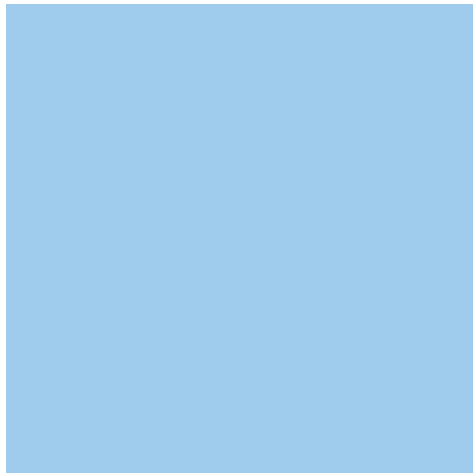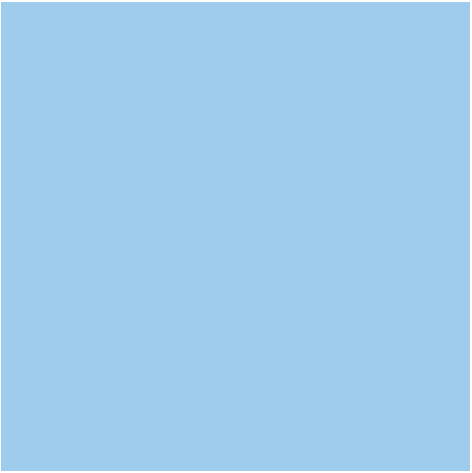
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