Community Engagement Guidance for Oil and HNS Incidents

June 2013

ARCOPOL PLUS
The Atlantic Regions' Coastal Pollution Response

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Community Engagement

Guidance for Oil and HNS Incidents

June 2013

Cover photos: M/V *Rena* incident Courtesy of Maritime New Zealand and Bay of Plenty Regional Council

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GRAPHICS KEY

The following buttons are used throughout the document to identify key points, recommended actions, and considerations for the reader.

Important Point *– Key points to consider and remember*

Tips and Actions *– Suggested ideas and examples for engagement during preparedness and response*

Additional Information *– Refers readers to other sections of the guide or web links where additional information on a topic can be found*

Adapt, manage, or suffer … we all have to understand that there will never again be a major event … that won't involve public participation.

Adm. Thad Allen (2010), National Incident Commander for the Deepwater Horizon oil spill

Executive Summary

Community Engagement is important for spill response going forward because many coastal communities are concerned about oil and hazardous/noxious substance (HNS) spills, and they seek out and share information about these events. Social media and television channels dedicated to providing news 24/7, enable rapid, detailed reporting of newsworthy events and global sharing of information. The public perceives major marine oil and HNS spills, such as the 2010 Deepwater Horizon oil spill in the US and the 2011 M/V Rena incident in New Zealand, as disasters. Government representatives who are responsible for response and emergency management would be prudent to, first, understand that the risk perceptions of the public and communities are their reality, and then implement appropriate actions to address those risk perceptions. Engagement with communities is an opportunity for local authorities to learn about risk perceptions and concerns, share technically accurate information, and establish constructive relationships and dialogue about oil and HNS spills.

This guide contains material on a variety of interconnected, interdependent topics to support effective engagement between local authorities and communities. Local authorities are the logical governmental interface between the spill response organisation and communities affected by accidental marine pollution**.** To provide relevant utility and value, community engagement should benefit both the response organisation and the community. This guide, therefore, also aims to facilitate a shared understanding among spill responders, local authorities, and communities about opportunities and limitations for engagement at the local level. The response organisation needs to understand why community engagement is important. Communities need to recognise the institutional framework which is in place for spill preparedness and response, and learn about important technical aspects of spills which influence why and how response decisions are made to mitigate potential impacts.

This project applies an international stakeholder engagement standard for policy making, developed by the United Nations Environment Programme (UNEP) and others, to preparedness and response for oil and HNS spills. Stakeholder Engagement is a fundamental accountability mechanism that obliges an organisation and its stakeholders to identify, understand, and respond to concerns about issues that affect both the stakeholders and the response organisation, in this case involved in managing oil and HNS Spills.

The following are important summary points to guide community engagement during preparedness and response to oil and HNS spills:

- Local Authorities can help the community and other local stakeholders form realistic expectations about response before, during, and after a spill to better understand:
    - What actions are important, possible, and feasible to mitigate a spill situation,

  - What actions can help reduce exposure of the public and the environment to pollutants, and thereby
  - Reduce the potential for impacts, which in turn
  - Enhances recovery of the environment and the community.

- International and national laws, agreements, and regulations have been in place for many years which together comprise an institutional framework for oil and HNS spill preparedness and response, including organisational roles, responsibilities, response resources, requirements, plans and processes.
- It is important to align and integrate the responsibilities of local emergency authorities with spill authorities when both are activated under the National Contingency Plan (NCP) and the Civil Contingencies Act of 2004 (CCA). The interrelationship between response organisations for marine pollution and civil contingency organisations is evolving.
- Spill preparedness and response technical specialists and scientists, i.e., practitioners, have valuable experience with pollutants in the field under different conditions and locations. In this regard, their knowledge offers realistic insights to think ahead and anticipate what could happen and how pollutant impacts might be mitigated under a variety of conditions.
  - Each spill is characterised by a set of unique conditions which influence the selection of the response options.
  - Responders analyse incident-specific conditions to determine an optimal combination of response options, i.e., the set of response options which are most likely to result in a net environmental benefit.
  - Pollutants move in the marine environment and cause impacts in a patchy way, which is neither homogenous nor uniform in space and over time. Some habitats and organisms are more resilient than others in recovering from spill damage.
- Both the environment and people have the capacity to be resilient following an oil spill. The concept of patchiness also applies to resilience – people and parts of the environment (habitats and organisms at various life stages) impacted by an oil spill recover at different rates. Effective, appropriate decisions made during preparedness and response may enhance environmental and community resilience and recovery.
- Addressing stakeholder questions and concerns requires integrating the relevant natural, social, and health sciences, and knowledge. Scientists should not be separated from communities and leaders. Scientists need to listen, apply, and integrate their knowledge to address stakeholder questions and concerns.
- Research shows that lay people have the capacity to understand technical issues needed to make a well-informed judgment about risks, when given time, effort, and appropriate explanation using risk communication principles. Risk communication principles should be incorporated into external communications, and developing messages, about oil and HNS spills.
- Knowledge-based decision making about spills can be broadly informed by applying and integrating the knowledge from spill practitioners (leaders, operation specialists, and scientists), findings of academic and other researchers, and traditional knowledge, for example, fishermen and marine pilots who are knowledgeable about currents in a specific area.

- Response practitioners and researchers can compile accurate technical information about pollutant risks and hazards before and during an incident to address public perceptions, concerns, and questions. This information can be captured in fact sheets, shared with trusted sources of information in the community, and uploaded to local authority websites to help keep communities and the media accurately informed.
- Most oil and HNS spills are not disasters, but a few have been. Disasters are complex social crisis situations which result in interrelated economic, social and psychological impacts on communities, organisations, families, and individuals. Researchers distinguish between natural (floods) and technological (human-caused, e.g., spills) disasters. Technological Disasters are perceived as preventable.
- Participating in some way to improve the outcome of a serious event or disaster, e.g., volunteering, promotes community resilience. Community Resilience refers to the capacity of people to cope with a serious event that impacted them which they did not cause, and which is managed by outside entities like government, insurance, and experts.
- Stakeholder engagement, risk communication, social media, and volunteering conducted during preparedness and response activities are potential strategies to foster community resilience and recovery.
- Social media can serve multiple functions: a supplement to manage traditional media, a risk communication tool, and a means to enhance resilience through community participation.
- Funding different purposes of engagement related to spill preparedness and response may be covered by government, insurance, or the polluter. Some community engagement can be funded during preparedness and response by government under the CCA. Compensation for spill damages occurs through a claims process guided by insurance regimes.

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ACRONYMS

AA1000APS ..... AccountAbility [AA1000] Accountability Principles Standard

AA1000SES ..... AccountAbility [AA1000] Stakeholder Engagement Standard

AMOP ..... Arctic and Marine Oil Spill Program

APELL ..... [United Nations] Environment Programme Awareness and Preparedness for Emergencies at Local Level

ARCOPOL ..... Atlantic Region's Coastal Pollution Response

ASTHO ..... Association of State and Territorial Health Officers

ATSDR ..... Agency for Toxic Substances and Diseases Registry

BAP ..... Best Available Practices

BOPRC ..... Bay of Plenty Regional Council

CAMEO ..... Computer-Aided Management of Emergency Operations

CCA ..... Civil Contingencies Act of 2004

CIS ..... Community Information System

CLC ..... Civil Liability Convention

CONCAWE ..... Conservation of Clean Air and Water in Europe

CPR ..... Counter Pollution and Response Branch

DE ..... Germany

DECC ..... Department of Energy and Climate Change

DK ..... Denmark

DfT ..... Department for Transportation

DTI ..... Department for Trade and Industry

EC ..... European Community

EG ..... Environment Group

EHS ..... Environmental Health and Safety

EMSA ..... European Maritime Safety Administration

EN ..... Community Information System

EPC ..... Emergency Pollution Control

EU ..... European Union

FR ..... France

HNS ..... Hazardous and Noxious Substance

IE ..... Ireland

IMO ..... International Maritime Organisation

IOPC ..... International Oil Pollution Compensation [fund]

IOSC ..... International Oil Spill Conference

IPIECA..... International Petroleum Industry Environmental Conservation Association
ISCRAM ..... Information Systems on Crisis Response and Management
IT ..... Italy
ITOPF.....International Tanker Owners Pollution Federation Limited
KR.....Korea, Republic of
LRF..... Local Resilience Forum
LV .....Latvia
MAB ..... Multi-Author Blogs
MAPRT ..... Media and Public Relations Team
MARPOL..... International Convention for the Prevention of Pollution from Ships
MCA ..... Maritime and Coastguard Agency
MCEER.....Multidisciplinary Center for Earthquake Engineering Research
MRC..... Marine Response Center
NCP.....National Contingency Plan (UK)
NEBA ..... Net Environmental Benefit Analysis
NEDRA.....Net Environmental Damage and Response Assessment
NGO..... Non-Governmental Organisation
NL ..... Netherlands
NO .....Norway
NOAA .....US National Oceanic and Atmospheric Administration
OPOL ..... Oil Pollution Liability Association Limited Agreement
OPRC .....International Convention on Oil Pollution Preparedness, Response, and Co-operation
OSAT .....Operational Science Advisory Team
OSTP.....Oil Spill Treatment Products
PB ..... Pembrokeshire County
P&I .....Protection and Indemnity
PT ..... Portugal
RCG..... Recovery Co-ordinating Group
RSS .....Really Simple Syndication
SCAT .....Shoreline Clean-up and Assessment Technique
SCU..... Salvage Control Unit
SCG.....Strategic Co-Ordination Group
SE..... Sweden
SES.....Stakeholder Engagement Standard
SOLAS..... Safety of Life at Sea

SOSREP.....Secretary of State's Representative for Salvage and Intervention

SRC.....Shoreline Response Centre

STAC..... Science and Technical Advice Cell

TCG..... Tactical Co-ordination Group

UC.....European Commission

UK.....United Kingdom

UNCLOS..... United Nations Convention on the Law of the Sea

UNEP/OCHA.....United Nations Environmental Programme/ Office for the Co-ordination of Humanitarian Affairs

US..... United States

VMP ..... Volunteer Management Plan

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Use of This Guide

PURPOSE OF THIS GUIDE

In the event of an oil spill or incident which threatens or impacts the shore, local authorities will be responsible for shoreline clean-up and other activities. Multiple levels of government can be involved in spill response but local authorities are expected to address concerns at the community level, including those of elected officials and other stakeholders. This guide views the local authorities as the interface between the response organisation and affected communities**.**

The purpose of this guidance is to enable good practices that promote successful engagement between a spill response organisation and affected communities in the vicinity of an oil or hazardous and noxious substance (HNS) incident. The guide is written to facilitate a shared understanding among spill responders, local authorities, and communities about opportunities and limitations for engagement at the community level before and during oil and HNS spills that occur in or near UK waters.

This guide incorporates factors related to community engagement which are important for a response to be viewed as a success. These factors have been drawn from experienced spill responders and researchers (Walker et al., 1995):

- The response organisation must be able to communicate and manage information internally and externally (the media and public).
- Co-ordination between government and industry must be pre-planned, account for stakeholder interests, and ensure a response organisation that will be cohesive and effective.
- The response organisation must meet the public's realistic and achievable expectations for response to the hazard.

Community Engagement is an important set of activities that can build a bridge between the response organisation and those most affected by oil or HNS spills to benefit all those with a stake in the response.

For engagement to be beneficial and meaningful, it is important for local authorities and communities to share an understanding and develop realistic expectations about spill response and recovery, as well as for responders to understand why community engagement is important. To this end, this guide discusses:

1. The global and UK regulatory context, which provides a framework for spill preparedness, response, and restoration, including compensation for environmental, socio-economic, and health impacts;
2. The research context, which explains how spills, emergencies, and disasters affect communities, as well as community resilience and recovery from such events;

3. Technical information and experience from responders that recognises:

    - The influence of the wide variability in spills on potential outcomes; and
    - The opportunities (potential benefits) and limitations (potential constraints) of response options.

Taken together, these contexts provide a foundation to identify realistic opportunities for effective community engagement going forward. Building on this foundation, this guide applies an international standard for stakeholder engagement to oil and HNS spill preparedness and response.

Structure of this Guide

This guide is made up of five technical sections plus a sixth section containing supplemental information (Figure 1). Text boxes will appear throughout the guide to provide supplemental information.

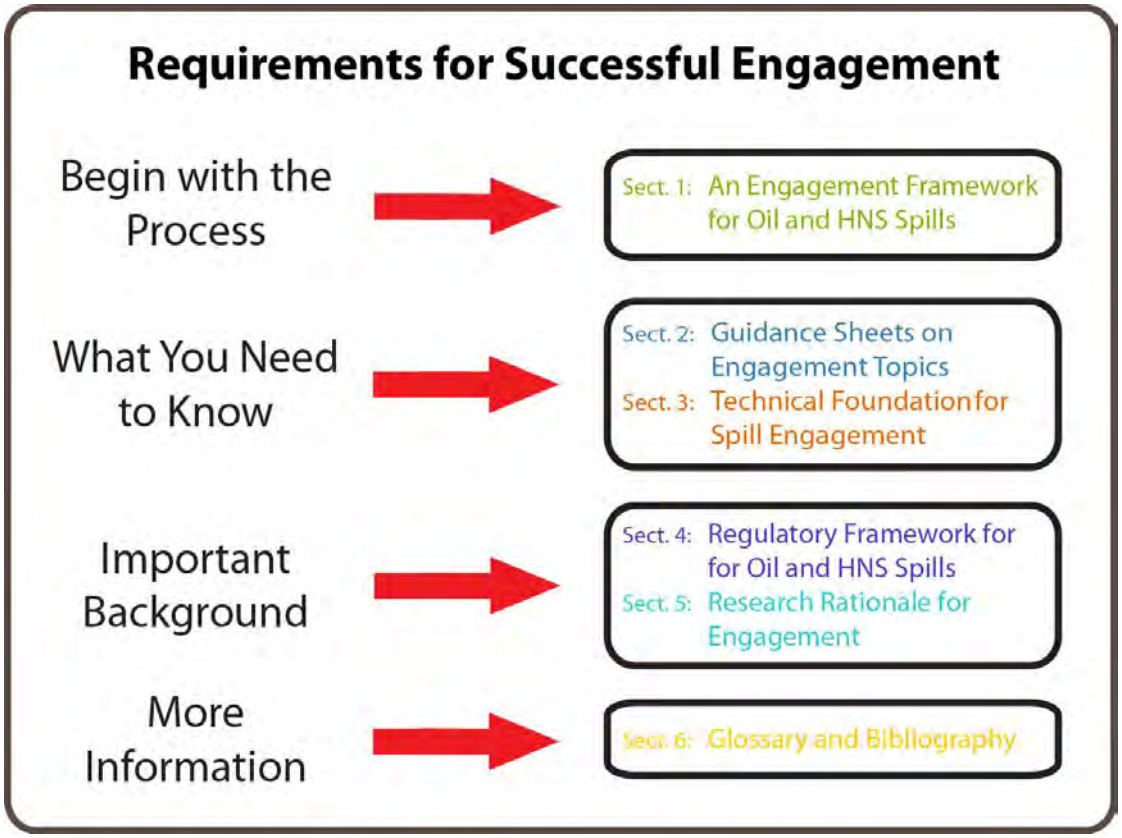

Figure 1. *Using this Community Engagement Guide.*

Section 1 describes a framework for implementing community engagement for oil and HNS spills which is based on an international standard for stakeholder engagement (AccountAbility, 2011) to oil and HNS spill preparedness and response.

Section 2 contains guidance sheets on supporting topics, which are the areas of interest specified in the project scope as follows:

- Community Resilience
- Stakeholder Engagement
- Community Liaison Representatives
- Stakeholder Fact Sheets
- Managing Perceptions
- Risk Communication
- Media Management
- Social Media
- Organising Volunteers
- Managing Social and Economic Impacts
- Recovery Planning

Section 3 highlights technical information and key concepts about spill response which are important to understand when engaging with spill responders.

Section 4 describes international and UK governmental regulations and agreements which set forth requirements and guidance for oil and HNS spill prevention, preparedness and response. This institutional framework has evolved over the last four decades.

Section 5 discusses the value and contributions of practitioner and academic knowledge and research in relation to oil and HNS spill decision making and engagement. Knowledge gained from experience and research has been and will continue be used to inform those making decisions about regulations, preparedness and response.

Section 6 contains a Glossary and Bibliography to supplement and document sources used in the guide and provide readers with additional information.

For the readers' convenience, many website links have been provided throughout the guide; they worked properly on the date of publication.

HOW THIS GUIDE WAS PREPARED

In order to prepare this guidance, the project team conducted a desktop study that consisted of:

- Reviewing the pertinent international, national, and local regulations and standards which govern oil and HNS spill preparedness and response in the Atlantic Region of Europe;
- Examining spill case studies from Europe, the US, and Asia for lessons learned relevant to community engagement topics;
- Considering best practice guides available from emergency managers and responders, authored by government, industry, and non-governmental organisations (NGOs);
- Reviewing a variety of social science research studies which provide a rationale for community engagement and insight about how to engage effectively; and
- Surveying more than 40 experienced international responders to obtain their recommendations about engagement and the specified areas of interest.

Disasters, caused by both nature and man, have been studied to learn about post-impact changes in communities and ways to enhance community recovery from those incidents. Learning about how people are affected by and recovery from disasters has led to new disaster preparedness and response frameworks, often created by national regulation but carried out at the local level. Oil and HNS spills obviously are different from natural disasters; however, disaster and social science researchers provide evidence that some oil spills (i.e., the *Exxon Valdez* and Deepwater Horizon oil spills) have had disastrous effects on communities. The project team conducted a research review and highlighted the aspects which relate to implementing community engagement during oil and HNS spills.

Local authorities have a choice going forward about how they engage the public and stakeholders in areas affected by oil and HNS spills. This guide reflects the findings of the desktop study and suggests good practices for community engagement before, during, and following coastal spills involving oil and HNS.

1. An Engagement Framework for Oil and HNS Spills

Summary Points

- The local authorities are the logical owners of community engagement for oil and HNS spill preparedness and response.
- Stakeholder engagement is a fundamental accountability mechanism that obliges an organisation and its stakeholders to identify, understand, and respond to concerns about issues that affect both the stakeholders *and* the response organisation.
- Relevant stakeholders are those individuals, groups of individuals and organisations that could be affected by the response organisation's performance. To be relevant and complete, the engagement process should include spill response representatives in addition to local authorities and stakeholders at the local level.
- Community engagement needs to be planned and implemented during preparedness and then activated during response. This is consistent with the UK Civil Contingencies Act of 2004 (CCA).
- Engagement offers mutually beneficial opportunities by incorporating local input into the response organisation in appropriate ways. Engagement can help with emergent organisations during spills the public considers a disaster (See Section 5) and prevent them from hindering the response, as well as facilitate community resilience and recovery.
- An international standard outlines a 5-stage process which is applicable to engagement for oil and HNS spills. The stages are: 1) Think strategically; 2) Analyse and plan; 3) Strengthen engagement capacities; 4) Design the process and engage; and 5) Act, review and report.
- Indicators of successful engagement are: 1) The community trusts and has confidence in local authorities and the response organisation; 2) Community and stakeholder expectations about spill response are realistic and achievable; and 3) Community leadership and stakeholders are engaged and communicate and exchange timely and reliable information to meet their needs and the needs of the response organisation.

The emergence of organisations and groups – that is, social groupings that had no existence prior to the occurrence of a major spill event or disaster – occurs in order to deal with related problems that their members define as pressing and when the community feels it necessary to respond to or resolve their crisis situation (Wenger, 1992) and steps in to form an emergent organisation.

Community engagement can be accomplished by planning (pre-incident preparedness) and implementing (during response) a program that leverages local knowledge and preferences with the expertise and capabilities in the spill response organisation; this strategy is outlined in the UK National Contingency Plan (NCP) (Section 4). Engagement offers mutually beneficial opportunities by incorporating local input into the response organisation and by helping community stakeholders

understand the spill response and claims processes so businesses and residents can resume their normal function in the community as quickly as possible. Stakeholders for whom engagement offers potential value include:

- **Local authorities.** Engagement can help address the concerns, questions, and priorities of their stakeholders to help assure a successful response and recovery.
- **The response organisation.** Engagement can help define meaningful and appropriate priorities in spill response decision-making; take advantage of local knowledge -- especially for shoreline protection and clean-up; make use of community networks through social media to share factual information about the incident; and may provide access to volunteer resources in appropriate situations.
- **Local stakeholders.** Engagement can support community emergency plan development and a local resilience forum. It provides volunteers and other resources to promote community resilience and recovery, especially from Tier 2 and 3 incidents that have extensive shoreline impacts; and expedites the claims and compensation process for socio-economic impacts resulting from a spill.

STAKEHOLDER ENGAGEMENT STANDARD

The **STAKEHOLDER ENGAGEMENT STANDARD** AA1000SES (2011), is an internationally-recognised benchmark for quality engagement. The standard consists of a two-part Manual developed by the United Nations Environmental Programme (UNEP), AccountAbility, and Stakeholder Research Associates. This standard was developed for use by businesses and government representatives, recognising that stakeholder engagement is crucial to an organisation's sustainability and success.

The standard was developed for non-emergency situations, such as policy development. However, it offers good practices and a framework which can be tailored to oil and HNS spill planning and response. The standard is a guide for community engagement as a planned activity, which aligns well with UK guidance on pre-incident planning at the local level for civil contingencies. Some organisations use stakeholder engagement systematically as part of risk identification and management. Local Authorities can apply the principles in the standard to support effective community engagement. The principles in the standard are consistent with the research context for community resilience and recovery discussed in Section 5, especially from major spills which may seriously impact coastal communities.

Requirements of the Stakeholder Engagement Standard

According to the standard, quality stakeholder engagement must:

- Be based on a commitment to the AA1000 Accountability Principles Standard (AA1000APS) principles;
- Clearly define the scope;
- Have an agreed decision-making process;
- Focus on issues material to the organisation and/or its stakeholders;
- Create opportunities for dialogue;
- Be integral to organisational governance;
- Be transparent;
- Have a process appropriate to the stakeholders engaged;
- Be timely; and
- Be flexible and responsive.

Quality engagement can be a source of innovative partnerships. The benefits from quality engagement can be substantial and may:

- Lead to defensible, credible outcomes by giving those who have a right to be heard the opportunity to be considered in decision-making processes that impact them;
- Enable better management of risk and reputation;
- Contribute to the development of trust-based and transparent stakeholder relationships;
- Inform, educate, and influence stakeholders to improve their decisions and actions that will have an impact on the organisation;
- Allow for the pooling of resources (knowledge, people, money, and technology) to solve problems and reach objectives that cannot be reached by single organisations;
- Enable understanding of the complex operating environments, including cultural dynamics; and
- Enable learning from stakeholders, which can result in acceptable outcomes that incorporate local knowledge, values and priorities.

The Stakeholder Engagement Standard (2011) and The Stakeholders Engagement Manual, Volume 2: The Practitioner's Handbook on Stakeholder Engagement (2005), by AccountAbility, is available at www.accountability.org.uk.

WHAT SUCCESSFUL ENGAGEMENT LOOKS LIKE FOR OIL AND HNS SPILLS

What does successful community engagement for oil and HNS response look like and how do we achieve it? Derived from responder experience and prior research, Table 1.1 (next page) identifies three indicators of successful oil and HNS spill engagement, strategies for implementing successful engagement, and specific topics which support successful engagement. Each of these supporting topics is discussed in separate guidance sheets contained in Section 2. This table also indicates generally when (before, during, and/or after response) engagement activities need to commence in order to be successful.

Table 1.1. Indicators of successful community engagement		
Success Indicator	**Implementation Strategies**	**Supporting Topics**
The community trusts and has confidence in local authorities and the response organisation. **When to act:** Pre-spill planning, then update and refine during response	• Leverage existing relationships. • Identify oil and HNS stakeholders in the community and define the nature and level of their concerns (stakeholder mapping). • Make a commitment to community engagement for specific, mutually-agreed purposes related to oil and HNS spills. • Together, develop an engagement plan for oil and HNS preparedness and response.	• Community resilience • Stakeholder engagement • Community liaison representatives
Community and stakeholder expectations about spill response are realistic and achievable. **When to act:** Pre-spill planning, then update, implement, and refine during response	• Prepare methods and tools that will help the community understand realistic options available to manage and mitigate the consequences of oil and HNS spills. • Apply risk communication principles to convey limitations and opportunities of available response technologies. • Involve technical representatives with relevant expertise from the local level in preparedness and response decisions.	• Stakeholder fact sheets • Managing perceptions • Risk communication • Managing the media
Community leadership and stakeholders are engaged, communicate and exchange timely and reliable information that meets the needs of their constituency and the response, which will promote realistic and credible response decision-making, facilitate appropriate compensation for damages, and promote recovery. **When to act:** Before, during, and after response	• Develop staff skills in the use of strategies, methods, and tools that the liaison representatives and Community Engagement Team can use to engage the community and meet community needs. • Apply skills during pre-spill planning, training, exercises, and response. • Develop a general plan for community engagement activities during response lead by local authorities, as a foundation to promote community resilience and recovery.	• Utilising social media • Organising volunteers • Managing social and economic impacts • Community recovery

STAKEHOLDER ENGAGEMENT PROCESS

Stakeholder engagement is a fundamental accountability mechanism that obliges an organisation and its stakeholders to identify, understand, and respond to concerns about issues that affect both the stakeholders and the organisation. In this guide, the organisation refers to local authorities and their role in the UK response structure as described in the NCP. The term, *stakeholders*, refers to all those at the community level with whom the local authorities may engage.

Stakeholder Engagement is a process used by an organisation to engage relevant stakeholders for a *clear purpose* to achieve *accepted outcomes*.

Before an incident occurs, local authorities should commit to, plan for, implement, and practice effective community engagement. Civil emergency preparedness under the CCA provides local authorities with a ready foundation of relationships with their respective communities. AA1000SES (2011) defines five stages of the stakeholder engagement process to develop an engagement plan.[1] These stages may overlap and not be strictly sequential. Figure 1.1 illustrates the five stages local authorities can implement to develop an engagement plan with their communities. The remainder of this chapter discusses some key aspects of the stages with regard to oil and HNS spills.

To effectively aid in the successful response to an oil or HNS spill, local authorities should implement community engagement planning BEFORE spills occur.

Figure 1.1. *Stages of engagement planning. Source: AccountAbility, Stakeholder Engagement Manual, Vol. 2 (Krick et al., 2005).*

[1] Please refer to the Volume 2 of the AA1000SES Standard for complete details on engagement planning, available from: www.accountability.org/standards/aa1000ses.html.

Understanding Community and Stakeholder Issues

The AA1000SES Standard notes that inclusivity is a capability which is essential for successful engagement. Inclusivity means understanding and accepting as valid key stakeholder concerns, their performance perceptions/expectations, and your past and future capacity for coherent responses to your community and stakeholder issues. Inclusivity can be achieved by adherence to the following three principles:

- **Materiality**: knowing what concerns are important to you and your stakeholders.
- **Completeness**: understanding and managing concerns and associated stakeholder views, needs, and performance perceptions and expectations.
- **Responsiveness**: coherently responding to stakeholders' and the organisation's concerns.

Local authorities in the response organisation should build an engagement team that has the capacity to be inclusive. A good starting point may be to work with the Local Resilience Forum (LRF) in each area.

To be complete and relevant, the engagement process should include spill response representatives in addition to local authorities and community stakeholders**.** Local authorities are familiar and have established relationships with their respective communities. This provides a ready foundation for successful engagement. On the other hand, local authorities may be less familiar with the broad range of technical aspects of oil and HNS spill response unless multiple Tier 2 or 3 spills have occurred in their area and during their tenure. The Maritime and Coastguard Agency (MCA), along with other public and private spill responders, can contribute expert technical knowledge and experience regarding spill response management and options to mitigate the impacts of oil and HNS on a community.

Building a team that can obtain and sustain the trust and confidence of the community and stakeholders requires an investment of time by local authorities and others with key roles in spill response – they must commit to engagement before, during, and after oil and HNS spills**.**

Boundaries for Sharing Information during Engagement

A critical pre-requisite for effective oil and HNS spill engagement is to consider in advance the sensitivities of data and information sharing during response. Developing common understanding about issues works best when all participants have access to the same information.

Establishing boundaries for disclosure is a valid condition for engagement. For engagement to be productive and mutually beneficial, local authorities as the owners of the engagement process should establish the boundaries of disclosure and communicate these boundaries to its community stakeholders**.** The boundaries of disclosure should specify what information the local authorities will share with its stakeholders and what information stakeholders may, or may not share, share outside the engagement process. Potential options for consideration include:

- Full disclosure including attribution of who said what;
- Full disclosure without attribution of who said what;
- Limited disclosure agreed by participants; and
- Limited disclosure controlled by the owners of engagement.

This aspect of the engagement process needs to be thoughtfully considered in relation to the issue of transparency. Openness and transparency can strengthen people's trust in government and encourages greater public participation in decision-making. However, some information generated during a response may be sensitive for security or legal reasons and therefore must be restricted in its distribution. Information, and its use or misuse, may have significant legal and reputation implications for all those involved in the response. Another aspect to consider is that our understanding about a spill situation evolves as more information and data is gathered – even though people have questions and concerns, accurate and complete information to address those concerns may not yet exist. These concerns are legitimate reasons for not sharing all incident information at all times with community stakeholders.

Stage 1 – Strategic Thinking

The aim of this first stage is to identify the reasons for stakeholder engagement, key stakeholder groups, and issues that relate to local authorities and their responsibilities during response**.** Information generated in this stage becomes the basis for ensuring that stakeholder engagement informs and becomes part of the preparedness and response strategy. This stage involves an overall look at the purpose and objectives for engagement, how to prioritise community stakeholders, and specific issues that are important to a successful response.

A fundamental step in achieving successful engagement is thinking strategically about why engagement is important (purpose), what to engage on (scope), and who needs to be involved in the engagement (ownership, mandate, stakeholders) as illustrated in Figure 1.2.

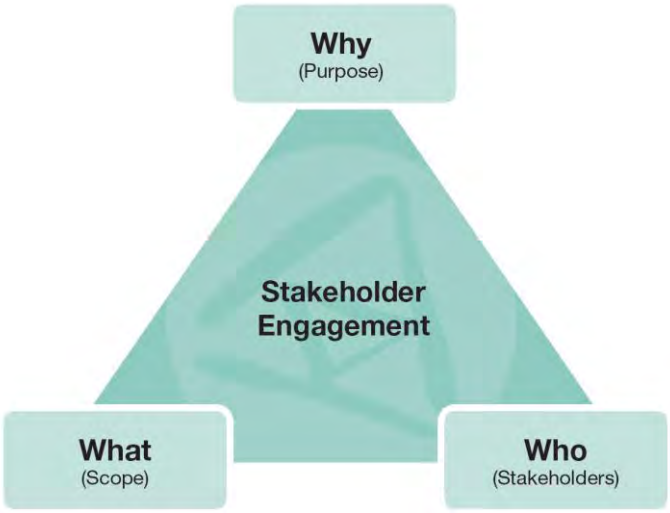

Figure 1.2. *Purpose, Scope, and Stakeholders. Source: AA1000SES, 2011.*

Purpose of Engagement

There are two broad categories of purpose: (1) develop or improve strategy, or (2) address operational issues. Building trust-based relationships is inherent in both types of purpose.

Scope of Engagement

The scope of the engagement should address:

- The issue or subject matter to be addressed;
- The parts of the organisation and associated activities the engagement will address; and
- The time frame the engagement will address.

A suggested purpose for oil and HNS spill stakeholder engagement at the local level could consist of:

- Implementing an effective, timely, and credible process for stakeholder interactions; and
- Providing situation-appropriate, credible and timely assistance and input to local authority decisions from stakeholders in the community at the local level during preparedness and response.

A suggested scope of stakeholder engagement in a community affected by an oil or HNS spill is to incorporate community stakeholders in procedures and organisational arrangements to mitigate shoreline impacts from an Oil or HNS spill. This aspect of engagement planning can become part of the local authority coastal pollution response plan. Local authorities need to think strategically about how to improve the outcome of spill response at the local area through community engagement.

To improve the outcome of response, preparedness procedures and arrangements should:

- Identify activation triggers, boundaries, and levels for community engagement.
- Include a spill risk assessment which characterises the types of spills where some community engagement would be appropriate and mutually beneficial (for the community, local authorities, and the response organisation).
- Identify stakeholders and their points of contact for each category of key stakeholders in the local area related to oil and HNS spills. Who are the same for both types of spills? Relate these stakeholders to the functions in the UK response structure.
- Identify local representatives who have appropriate knowledge and skills for various spills topics and whose opinions are trusted by the community.
- Identify topics of interest about potential oil and HNS spills in the local area (pollutant sources, response options and equipment, locations, response organisation, potential opportunities for volunteers, claims, and other issues which are a challenge to explain properly during an emergency).
- Identify and set priorities for human health, living resources, amenities, and uses of the those resources and amenities that potentially could be impacted by response efforts;
- Provide co-ordination with Category 1 responders to support oil and HNS spill response;
- Provide co-ordination between the Strategic Co-oordinating Group and the response organisation teams: management, technical (including the Environment Group and the Science and Technical Advice Cell [STAC]), procurement, media and public relations, and information and administration on the activities listed in the previous Table 6; and
- Support affected stakeholders to facilitate the effective processing of claims and compensation at the local level.

Stakeholder Identification

The engagement mandate comes from those responsible for defining the purpose, scope, and ownership of engagement. This guide suggests that the owners of the community engagement process are the local authorities before, during, and after response to an oil or HNS spill. Relevant stakeholders are those individuals, groups of individuals, or organisations that could be affected by the organisation's activities or performance. Establishing a method to systematically identify stakeholders who could contribute to achieving the purpose of engagement or be affected by its outcome is fundamental to the process. The following attributes should be considered when identifying relevant stakeholders (AccountAbility, 2011):

- **Dependency** – those who are directly or indirectly dependent on the organisation or those whom the organisation is dependent upon for operation;

- **Responsibility** – those to whom the organisation has, or in the future may have, legal operational, commercial, or moral/ethical responsibilities;
- **Tension** – groups or individuals who need immediate attention with regard to financial, wider economic, social, or environmental issues;
- **Influence** – those who can have an impact on strategic or operational decision-making; or
- **Diverse perspectives** – those whose different views can lead to a new understanding of the situation and identification of unforeseen opportunities.

Potential stakeholder groups who could contribute to achieving a successful response or be affected by the outcome of response to oil or HNS spills are suggested in Table 1.2.

Table 1.2. Stakeholder group relevance to spill response

Stakeholder Group	Attribute				
	Dependency	Responsibility	Tension	Influence	Diversity Perspectives
Category 1 responders	X	X		X	
Incident managers and spill responders	X	X		X	
Elected and appointed officials	X	X	X	X	X
Media and the public			X	X	
Agency regulators	X	X	X		
Public health specialists		X		X	X
Scientific/academic community			X		X
Seafood fishing industry	X	X	X		
Coastal tourist industry (hotels, restaurants and chefs, shops, recreational activities, and tourists)	X	X	X	X	
Non-governmental groups (NGOs)			X		X
Coastal land owners	X	X		X	
Oil, gas, marine industry	X				X
The polluter	X	X	X	X	
Volunteers			X	X	X
Others as appropriate					

Outputs of Stage 1

The outputs of Stage 1 – Strategic Thinking should identify:

- Strategic engagement objectives (including limits on information sharing);
- Objectives, issues, and a stakeholder matrix; and
- Initial prioritisation of stakeholders and/or their issues.

Stage 2 – Analyse and Plan

During this stage the engagement team collects information and develops a plan of action based on the strategic engagement priorities and current abilities already identified in Stage 1 – Strategic Thinking. It is important to build a base of knowledge about the organisation and its stakeholders in order to prioritise further and develop a plan for engagement. Local authorities are tasked with identifying stakeholders in their communities and those stakeholders' issues of concern through their existing relationships and by cultivating new ones. What kinds of relationships are desirable with those key spill stakeholders who share similar interests as well as those who may have conflicting interests?

The next step is to identify specific organisations that represent each group of stakeholders. Each organisation should be evaluated and assigned a relative engagement priority by assessing the level of their concerns (high, medium, low, or not applicable). Table 1.3 displays an example matrix that can be modified to reflect organisation and/or individual stakeholder issues and level of concern for each area or county. Some thought should also be given to whether identified issues represent an opportunity for engagement because there is good technical consensus about the issue by responders and stakeholders, or if it is more risky, due to little consensus among responders and stakeholders. More risky issues will probably require a higher level of engagement to resolve, in terms of time, numbers of people or organisations to engage, and the need for multiple approaches.

By the end of this stage, the engagement plan should have:

- An improved understanding of the gaps between your organisation and stakeholders' expectations; and
- Identified stakeholder representatives.

Activities in this stage need to provide opportunities for information exchange and the promotion of a shared understanding of response priorities and realities in relation to the priority issues of stakeholders. Both the organisation and the relevant stakeholders should gain an understanding of the resources that are available for the implementation and probable benefits and limitations from the potential outcomes.

Outputs of Stage 2

The outputs of Stage 2 – Analyse and Plan should include:

- An overview of stakeholder representatives and stakeholder-specific objectives;
- Stakeholder assessments for each prioritised stakeholder group;
- An understanding of the capacity to accept stakeholder input and influence an outcome;

Table 1.3. Mapping of Stakeholders, their Concerns, and Relative Priority of Concerns														
External Stakeholders	**Concerns**													
	Human Health	**Trust**	**Safety**	**Environmental**	**Information**	**Ethics**	**Economics**	**Responsibility**	**Legal**	**Process**	**Pets/Livestock**	**Religious**	**Fairness**	**Other**
Political Officials														
Public at Large														
Media														
Fishermen and their Families														
Community at Risk														
Emergency Response Personnel														
Public Health Personnel & Health Agency Employees														
Physicians/ Nurses/ Veterinarians/ Pharmacists														
Law Enforcement Personnel														
Businesses dependent upon/users of affected waters														
Non-governmental Organisations (NGOs)														
Other (specify)														

- An assessment of the organisation's ability to respond to an issue; and
- An assessment of resources for the implementation of engagement outcomes.

Stage 3 – Strengthen Engagement Capacities

The aim of this stage is to ensure that the local authority and its stakeholders have the organisational systems and skills to engage successfully in a productive relationship as well as overcoming the barriers that may hinder stakeholders from engaging. This stage requires considering existing organisations, their internal and external competencies, and capacities to engage. The task is to strengthen existing capacities and build skills to ensure that all relevant parties are able to support effective engagement.

The engagement process normally involves or is driven by what is referred to as 'boundary spanners' (Ansett, 2005). These are individuals within organisations that establish links across organisational boundaries, identify threats and opportunities, embed insights back into the organisation, and make complex multi-stakeholder collaboration possible. The engagement strengthening process is likely to involve a variety of individuals each with a diverse level of expertise and experience – everything from technical specialists to generalists. When preparing to engage with stakeholders, it is vital to consider what internal skills are required to address the broad spectrum of capabilities. (Krick et al., 2005) identified a range of basic skills and characteristics for categorising the organisation and stakeholder capabilities for successful engagement:

- Project management and analysis;
- Personal skills;
- Engagement techniques;
- Issues knowledge; and
- Credibility.

In addition to the ability to engage successfully, leaders of the engagement process should be knowledgeable and credible on the relevant issues. Beneficial skills for engagement leaders should include project management and analytical skills, as well as certain personality traits, such as integrity. They should be solution-oriented, and motivated toward problem prevention and solving. Note that a key contributor to successful engagement is credibility. It is important to include individuals who are from a similar background to and are considered credible and trustworthy by the stakeholder group. Such 'trusted' individuals must command the stakeholders' respect. They may be required to explain technical information, relate to the stakeholder group culturally, and put stakeholders at ease all while retaining their credibility and trust within the stakeholder group. This trusted individual often is a member of the stakeholder group of concern. Examples of potential trusted individuals are trade association leaders, community health workers, physicians and pharmacists, and scientists from local universities whose research has studied the area.

There is no discrete end to this stage. This is the start of an on-going process to ensure that the capacity is in place for effective, two-way engagement with stakeholders.

Outputs of Stage 3

Outputs of Stage 3 – Strengthen Engagement Capacities should include an:

- Enhanced ability of staff to engage;
- Internal organisational system that will ensure successful engagement; and
- Ability of external stakeholders to engage.

Stage 4 – Design the Process and Engage

The aim of this stage is to design and implement engagement processes which meet stakeholder expectations and organisational objectives**.** Participants should consider and determine the desired level of engagement (Table 1.4, adapted from Krick, et. al, 2005), as well as select techniques and procedures to design an approach that suits the needs of the response and supports the purpose and scope of the engagement. Engagement activities should include representatives from:

- Identified key community stakeholders, including trusted individuals;
- local authorities; and
- Responders, e.g., harbour authorities.

Table 1.4. Levels of Engagement

Level	Goal	Communi-cation	Nature of Relationship	Engagement Approaches
Remain Passive	No goal. No engagement	No active communication	No relationship	Stakeholder concern expressed through protest, letters, media, web-sites etc., or pressure on regulatory bodies and other advocacy efforts
Monitor	Monitor stakeholders' views.	One-way: stakeholder to company.	No relationship	Media and internet tracking. Second-hand reports from other stakeholders possibly via targeted interviews.
Inform	Inform or educate stakeholders.	One-way: company to stakeholder, there is no invitation to reply.	Short or long term relationship with stakeholders. "*We will keep you informed*."	Bulletins and letters. Brochures, reports and websites. Speeches, conference and public presentations. Open houses and facility tours. Road shows and public displays. Press releases, press conferences, media advertising, lobbying.

Table 1.4. Levels of Engagement				
Level	**Goal**	**Communi-cation**	**Nature of Relationship**	**Engagement Approaches**
Transact	Work together in a contractual relationship where one partner directs the objectives and provides funding.	Limited two-way: setting and monitoring performance according to terms of contract.	Relationship terms set by contractual agreement. "*We will do what we said we would*" or "*we will provide the resources to enable you to do what we agree*".	Public Private partnerships' and Private Finance Initiatives, Grant-making, cause related marketing.
Consult	Gain information and feedback from stakeholders to inform decisions made internally.	Limited two-way: company asks questions and the stakeholders answer.	Short- or long-term involvement. "*We will keep you informed, listen to your concerns, consider your insights, and provide feedback on our decision*."	Surveys. Focus Groups. Workplace assessments. One-to-one meetings. Public meetings and workshops. Standing stakeholder advisory forums. On-line feedback and discussion.
Involve	Work directly with stakeholders to ensure that their concerns are fully understood and considered in decision making.	Two-way, or multi-way between company and stakeholders. Learning takes place on both sides. Stakeholders and company take action individually.	May be one-off or longer-term engagement. "*We will work with you to ensure that your concerns are understood, to develop alternative proposals and to provide feedback about how stakeholders views influenced the decision making process*".	Multi-stakeholder forums. Advisory panels. Consensus building processes. Participatory decision making processes.
Collaborate	Partner with or convene a network of stakeholders to develop mutually agreed solutions and joint plan of action.	Two-way, or multi-way between company/ies and stakeholders. Learning, negotiation, and decision making on both sides. Stakeholders work together to take action.	Long- term. "*We will look to you for direct advice and participation in finding and implementing solutions to shared challenges*."	Joint projects, voluntary two-party or multi-stakeholder Initiatives, Partnerships.
Empower	Delegate decision-making on a particular issue to stakeholders.	New organisational forms of accountability: stakeholders have formal role in governance of an organisation or decisions are delegated out to stakeholders.	Long-term. "*We will implement what you decide*."	Integration of Stakeholders into Governance Structure. (e.g., as members, shareholders or on particular committees etc.)

Example approaches for engagement activities which are described in Volume 2 of the AA1000SES (Krick, et. al, 2005) are:

- Multi-stakeholder alliances, partnerships, voluntary initiatives and joint-projects;
- One-to-one meetings;
- Stakeholder advisory or assurance panels;
- Multi-stakeholder forums;
- Involvement of stakeholders into the investigation of issues, reporting, and policy development;
- Online engagement mechanisms, e.g., through social media or websites;
- Public-meetings (open house style with information tables);
- Inviting written responses from stakeholders, e.g. via reply slips in reports;
- Telephone hotlines;
- Surveys; and
- Focus groups.

Pollution responders have considerable experience with facilitated meetings, workshops and scenario-based exercises. Example response issues which could benefit from community consideration before a spill include:

- Within the county, what environmental resources, habitats, or shoreline areas would be priorities to protect from (various types of) spilled oil?
- Would protection priorities change from season to season?
- What response options are preferred to mitigate the threat of spilled oil near or on shore?
- Who are the trusted individuals or organisations who possess knowledge that is relevant to specific response issues and decisions?
- What volunteer capabilities exist which may become response resources, in addition to enhancing community recovery?

The answers to these questions, among others, can be incorporated into community emergency plans (an annex for oil and HNS spills), county engagement plans, and response plans of harbour authorities and companies (potential polluters) operating in the area.

Outputs of Stage 4

By the end of this stage, local authorities should have established a way of engaging with stakeholders as part of an ongoing process to consider issues material to a successful response. Outputs of Stage 4 include:

- Information, increased mutual understanding, or an agreement on a course of action/next steps on issues of mutual interest;
- Deepened relationship with stakeholders;
- Validation of the materiality of issues; and

- Possible identification of additional material issues.

Specific preparedness activities to support effective engagement for oil and HNS spills that could be carried out in Stage 4 are identified in the "Planning Actions (Pre-spill)" sections of the guidance sheets in Section 2. Example activities to support effective engagement with communities are:

- Develop an oil and HNS spill section in community emergency plans to address community engagement in various tiers of response.
- Develop fact sheets for the identified topics of interest. Refer to Guidance Sheet 4.
- Develop answers in advance to most of the media questions which can be predicted in advance. Refer to Guidance Sheet 7 – Media Management.
- With input from the legal advisers, identify guidelines for external communications once an incident occurs, that is, define opportunities and constraints on the timing and content of external communications with the media and those stakeholders who are not directly involved in the response.
- Develop a social media strategy. Refer to Guidance Sheet 8 – Social Media.
- Develop portion of a known website which is invisible or dark until needed and turned on during response. This website should contain knowledge-based content about oil and HNS spills, such as the fact sheets and media questions and answers. Refer to Guidance Sheets 4 and 7.

There should be agreement on an incident implementation process to refine the above inputs for incident-specific conditions. This process would include criteria for activating community engagement (e.g., scale or location of spill) and identifying representatives with technical knowledge and/or experience relevant to the identified issues.

Stage 5 – Act, Review, and Report

The aim of this stage is to translate new learning, insights and agreements into action, and to ensure that community stakeholders understand this reporting process. In this stage, outputs from engagement will be delivered while obtaining feedback on the process. This is the part of the process that helps local authorities and community stakeholders implement and evaluate the engagement process, both pre-spill and during response. Ways to accomplish this could include:

- Develop and conduct training on community engagement for agency representatives involved in managing spills, e.g., harbour authorities, and spill responders with appropriate community representatives.
- Conduct pre-spill exercises to assess the plan for community engagement and practice its implementation for oil and HNS spills.
- Review and report after training, drills, exercises, and actual response to provide a means for on-going improvement.
- Activate engagement during response to support an effective response and enable community resilience and recovery. Please refer to all the guidance sheets.

Outputs from Stage 5

The recommended Outputs from Stage 5 – Act, Review, and Report include having:

- Relevant information delivered to decision-makers from internal and external organisations, within a framework which promotes technical relevance and assurance, efficient compensation for damages, and community resilience and recovery;
- Increased mutual appreciation of existing issues relevant to response and community values, or realisation of a new issue's relevance, also referred to as materiality;
- Developed a stakeholder engagement outcome implementation matrix; and
- Developed a stakeholder engagement review and way to incorporate lessons learned in the community emergency plan, industry response plans, and other opportunities which may emerge from this process.

By the end of this stage, information gained should be delivered to appropriate agency decision-makers during preparedness and response. Furthermore, the engagement plan should outline a process for monitoring and reporting on outcomes, and plan for a review of the engagement process over time.

Engagement in Action: During Response

The previous section provided an overview of the five stages of the stakeholder engagement process and describes how they can be applied pre-spill. This section discusses how stakeholder engagement principles and pre-spill engagement process can be implemented during oil or HNS spill response in three primary areas:

- Engaging with, and providing appropriate input to, the response organisation,
- Promoting credibility in the response through effective information sharing and external communications, and
- Obtaining compensation for spill damages through the claims process.

Local authorities are at the right level of government to help the community understand before, during, and after an incident what can be done to mitigate the situation and impacts. Coastal communities and the public clearly have concerns about pollution of the marine environment, especially when the cause is an oil spill. In addition to environmental impacts, spills may also impact human activities and public health, depending upon the nature and location of the pollutant and the time of year that the spill occurs.

To achieve success, local authorities will need to take immediate action to implement community emergency plans while being pro-active and responsive to community concerns, questions, and requests. One issue that has yet to be resolved and would need to be addressed by the community emergency plan is the co-ordination with the response organisation required for spill response in the UK NCP (National Contingency Plan) and the disaster response organisation established by the CCA (Civil Contingencies Act of 2004). An overview of both of these important UK regulations is presented in Section 4.

The Response Organisation

Currently final agreements for how to organise multiple agencies and levels of government for oil and HNS spills is pending; the resolution is still evolving, but when complete will be included in the NCP update. One aspect relevant to community engagement is how the provisions and resilience authorities granted under the CCA 2004 (emergencies and disasters) will interface with the NCP organisation (oil and HNS spills). Knowing how this will play out is especially important for spills which may lead to a disaster designation through Tier 2 or 3 situations that threaten serious damage to human welfare or the environment. The NCP organisation is essentially "top down" with the Secretary of State's Representative for Salvage and Intervention (SOSREP) in charge, while the CCA organisation is "bottom up" with local authorities directing the response.

Under the NCP, key parts of the organisational structure used to manage the response are:

- The Salvage Control Unit (SCU) (for source control salvage operations).
- The Marine Response Centre (MRC) (for response actions at sea).
- The Counter Pollution and Response Branch (CPR) will be established when an incident results in pollution at sea.
- The Shoreline Response Centre (SRC) for response action on shore and action in area of each harbour involved. For Tier 2 or 3 responses, the MRC will likely merge with the harbour authority contracted responder. Given the CCA, shore response also will involve working with the Strategic Co-ordination Group (SCG) and Tactical Co-ordination Group(s) (TCG).
- The Environment Group (EG) provides environmental and public health advice to all these units[2]. These units may or may not be co-located depending upon the particular aspects of the incident. Under the CCA response mechanism, the EG equivalent is called the Science and Technical Advice Cell (STAC). An Environment Liaison Officer nominated by the Chair of the EG to be located at the SRC.

Under the NCP when a spill threatens or impacts the shoreline, an SRC will be established. When shoreline impacts are likely, there are several parts of the organisation which involve local authorities and represent potential opportunities for community engagement. Figure 1.3 shows an example of how these organisations might interface during a response which begins at sea but has shoreline impacts. Note the merging of NCP and CCA organisations in the centre, in the box containing the EG (NCP term) and the STAC (CCA term). The NCP recommends that the SRC should seek advice from the EG established for the incident.

[2] Under the CCA response mechanism, the EG equivalent is the STAC.

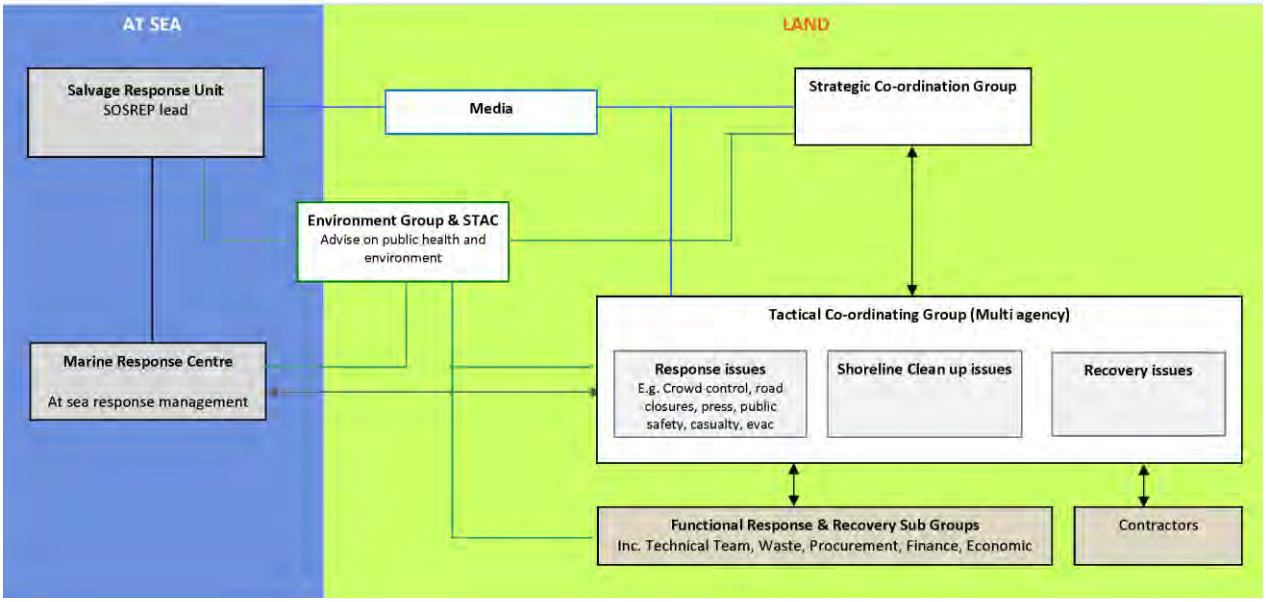

Figure 1.3. *Example elements of a spill response in the UK.*

The NCP also identifies six functional teams to support a SRC. The local authority normally chairs and provides administrative support to each functional team. These teams include:

- Management Team,
- Technical Team,
- Procurement Team,
- Waste Management Team,
- Media and Public Relations Team, and
- Information and Administration Team.

Each of these teams are composed of personnel from multiple agencies working in concert during the response making sure that the actions taken are co-ordinated, coherent, and integrated as they concentrate on the pollution clean-up. The teams operating in the SRC with their likely connections to community engagement and stakeholders are displayed in Table 1.5.

Table 1.5. SRC Teams and their role in engagement	
SRC Functional Team	**Relationship to Community/Stakeholder Engagement**
Management Team	• Interact with elected representatives, central government, the public and the media • Make appropriate arrangements to keep affected landowners informed and where practical consult affected landowners. Consideration should be given to the inclusion of significant landowner in the Management Team
Technical Team	• Liaising with the Environment Group, determine reasonable strategy for dealing with pollution and allocating resources based on priorities set by the Management Team • Inform or consult affected landowners • Include local authority representatives for technical and engineering services, waste management, health and safety, police • Three subgroups for waste management, health and safety, booming equipment • Include local authority liaison officers when pollution affects more than one local authority
Procurement Team	• Supporting claims for compensation
Waste Management Team	• Comprised of local authority / Harbour / Industry representatives and environmental regulatory staff; specialised contractors with specific waste knowledge may also be appointed • Advising on waste minimisation and segregation • Identify recovery, treatment and disposal options
Media and Public Relations Team (MAPRT)	• Consist of local authority press officers with a MCA public relations officer • Conduct media briefings and arrange interviews in accordance with Management Team (media is defined as broadcast, print, and text/electronic services) • If Management Team so directs, establish public help-line to handle calls from the public. Given that supplemental resources will be needed, consider local members from voluntary sector can be utilised for this task
Information & Administration Team	• Provide administrative support to all functional teams, including dissemination of information within and out of the SRC

The EG/STAC has a vital role in addressing the environmental and public health aspects of response to a coastal pollution incident (Table 1.6). The composition of the EG/STAC depends on the magnitude, complexity, and location of the incident. The core membership may include:

- Relevant statutory nature conservation bodies;
- Relevant government department with respect to fisheries and other wider maritime environmental interests;
- Relevant environmental regulator;
- Local public health or port health agency;
- Food Standards Agency;

- Affected or threatened local authorities;
- MCA;
- Sea Fisheries Committees, National Park Authorities;
- Animal welfare bodies; and
- NGOs with relevant expertise.

Table 1.6. Environment Group Responsibilities Related to Community/Stakeholder Engagement
Provide operational advice • Use available local knowledge • Take account of and seek to resolve conflicting environmental issues and priorities
Assess data, information and operational inputs • Human population at risk • Information on fishing grounds, spawning and nursery areas, shellfish beds, and mariculture • Information on abstractions from, discharges to and uses of all waters likely to be affected
Provide advice on monitoring • Risks and acute effects to public health • Preparation or identification of environmental baselines and monitoring of fisheries
Assess impact on human health • Impact on seafood • Risks and acute effects to worker or public health
Initiate long-term impact assessment

The purpose of the EG/STAC is to minimise the impact of the incident on the environment in the widest sense by providing prompt advice and guidance verbally to the SOSREP, Salvage Control Unit, the marine and shoreline response centres, as well as the command and control centre in a harbour for incidents involving the offshore oil and gas industry on all environmental and public health aspects of an incident. EG/STAC activities would likely include the assessment of environmental risks and potential impacts arising from an incident, as well as the implications of any clean-up or salvage operations. The NCP calls for the EG/STAC to record all advice and rationale in writing. Should the response units not accept the advice given by the EG/STAC, then they should also record their reasons in writing.

Information Sharing and External Communications

Accurately informing the local community, the media and other stakeholders about a significant oil spill which is often controversial requires constant, real-time co-ordination and collaboration within the response organisation. Stakeholders and the media may believe that the incident has environmental, health, and safety risks associated with oil, HNS, and some of the response options, such as dispersants and controlled burning in-situ. Clearly it is important to think about the best way to share the response organisation's information about the spill which can be used to address stakeholders questions, concerns and risk perceptions.

For additional information on information sharing and external communications which supports effective community engagement, refer to: Guidance Sheets Nos. 3-8.

External communications, including crisis communications, are traditionally the purview of the Media and Public Relations Team. Risk communications is a form of external communications; it is a distinct way of communicating with the public in general and, in particular, specific segments of communities affected by an oil spill. Media messages about perceived risks may not suffice because stakeholders, such as public officials, community, and academic researchers, sometimes have detailed questions that cannot be adequately addressed by talking points. Some stakeholders will need to learn about spill risks from a trusted, credible individual or organisation to form their own judgments about potential risks to the environment, human health and the economy, or assurance from someone independent from the response organisation. Effective, real-time external communications during an oil spill, therefore, must also provide for the rapid integration of risk communication with crisis communication.

Since every oil and HNS spill involves potential risks, applying risk communication principles to all external communications is beneficial. There are many different approaches to risk communication. Some of them focus on improving the way external communications about risks are conducted, e.g., developing better messages, and some focus on the content of risk communication, that is, sharing technical information to support the assessment of the potential for risks.

Integrating pre-spill general information, like the above references, with the details of the specific response situation will provide a more complete understanding of potential risks. In addition, engaging with stakeholders is important to assure the risk communication address their actual questions and concerns.

Real-time risk communication will not occur without an explicit requirement to implement this type of communications. Since risk communications are a specialty, technical specialists with appropriate backgrounds and experience will need to be activated and brought on scene, especially for oil spills which are likely to prompt controversy, and public outrage, e.g., when specific oil spill situations involve seafood safety, dispersants and in-situ burning, and even the relative risks among clean-up techniques to remove spilled oil from the environment. Specialists to support technical assessment for risk communication should be activated, the earlier the better. These specialists should develop a plan for carrying out risk communication activities, including defining a process to internal and external information flow.

Multiple entities in the response organisation have knowledge to contribute to the content of risk communication. It is advisable to request the assistance from technical specialists from the Environment Group and Shoreline Response Centre to address the questions and concerns of external stakeholders and support incident-specific risk communications through the Media and Public Relations Team, as well

as community liaison representatives when they are activated.

Social media is a contemporary engagement tool for implementing real-time risk communication. When an incident becomes a disaster in the public's view, the research of social scientists has shown that members of the public look to known sources of information first to address their questions and concerns but if these sources do not provide answers quickly, they public will leverage their own social networks to find and provide information outside the official response effort. Therefore it is advisable for the response management team, including public officials with responsibility during the response, to actively consider how to align with peer-to-peer information exchange, i.e., social media, and to develop new concepts about producing and disseminating information to facilitate effective risk communication during response to oil and HNS spills.

Compensation and Claims Process

The main sources of funding for costs associated with a pollution emergency are insurers, the polluter, and/or the government. During response, costs for stakeholder engagement could be funded under the CCA as approved by local authorities, as a reimbursable response cost, or compensation through claims submitted for spill impacts. Reimbursement of response costs and claims will depend upon whether such costs are agreed by the relevant parties.

Under the CCA, local authorities can incur expenditures for taking action with respect to emergencies or disasters, which may be outside the pollution insurance regimes. Such activities could include community engagement and volunteer management to enable community resilience and rapid recovery. It seems likely that some of these activities would not be covered by current insurances. But some might be covered if they support the provisions, such as activities that directly support shoreline clean-up for example. Although engagement activities are deemed by local authorities as essential to community resilience and recovery, payment for activities under the CCA is excluded from the remainder of this discussion. Instead, the discussion that follows is intended to provide the reader with helpful information on the spill claims and compensation process which been in place for some time.

Five distinct cases governing compensation from marine pollution (UK NCP):

1. Where persistent oil, e.g., crude oil and heavy fuel oil, are carried in bulk as cargo by a ship or other vessel referred to as a tanker, compensation is available under an international compensation regime;
2. Where persistent oil carried by any other type of ship causes pollution, there are special rules in the UK legislation designed to make it easier for claimants to obtain compensation;
3. Where a substance carried by a ship other than persistent oil causes pollutions, claims are subject to the normal rules of civil common law;
4. Where pollution is caused by an offshore installation, claims are subject to special rules imposed by Oil Pollution Liability Association Limited (OPOL) Agreement which provides a guarantee of payment of claims up to the amount in the Agreement; and
5. Where there is no identified source for the pollution, claimants can obtain no compensation unless they can provide that the source of the pollution was a tanker or offshore installation or pipeline.

Response to an oil or HNS spill is often a costly, unbudgeted expense. Initially, the costs of response operations fall on those incurring them; this is also true for those who are impacted by and suffer financial loss as a result of a pollution incident. Socio-economic impacts may be compensated through a claims process. Although community engagement is generally considered outside the scope of the claims and compensation regimes, engagement can be an opportunity for relevant input to expedite both response decision-making and claims processing. Therefore it is important to understand how response activities are funded during response as well as how claims are evaluated for compensation. Possible local engagement activities related to response could range from community and property owner input on cleanup priorities, to local knowledge about currents and pollutant movement for oil recovery operations, to scientific input from local academia to the Environment Group.

Compensation for damages from spills originating from offshore facilities varies from country to country. However, for spills which originate from ships, several international conventions govern the process to obtain compensation for resulting damages and losses.

International Compensation Conventions

Coastal oil pollution can lead to damage and economic loss for organisations, companies and individuals, and often affects local fishing or tourism industries in particular. Industries that use water for their processes, e.g., utilities which use water for cooling, may also be impacted. Those placed at a financial disadvantage as a result of a spill may be eligible for compensation. The ease with which compensation can be obtained depends upon the type and source of pollutant. This section provides a brief overview of compensation for responders and those stakeholders impacted by an oil spill under cases 1 and 2 described below. For further information regarding the cases 3, 4 and 5, please refer to Appendix O in the NCP.

For additional information refer to on claims and compensation, please refer to Guidance Sheet 11.

A global compensation regime for spills of persistent oil originating from tankers (bunker oil or cargo oil) was originally established in 1978. There are a variety of international conventions, as well as national compensation rules. Some examples of international conventions are:

- The 1992 International Convention on Civil Liability for Oil Pollution Damage (Generally referred to as 1992 Civil Liability Convention or CLC).
- The 1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Generally referred to as the 1992 Fund Convention).
- A Protocol to the 1992 Fund Convention, adopted in 2003, which established a Supplementary Fund for additional compensation.

For additional information on claims procedures for spill impacts please refer to:

The International Oil Pollution Compensation (IOPC) Claims Manual (2008)
http://www.iopcfunds.org/uploads/tx_iopcpublications/2008_claims_manual_e.pdf

The International Tanker Owners Pollution Federation (ITOPF) Technical Information Paper No 15 (2012): Preparation and Submission of Claims from Oil Pollution
http://www.itopf.com/information-services/publications/documents/TIP15PreparationandSubmissionofClaimsfromOilPollution.pdf

The main types of pollution damage claims that can be considered under the 1992 CLC and Fund Conventions and Supplementary Fund Protocol include:

- Clean-up and preventative measures to minimise pollution damage, even if no spill occurs if there was a grave and imminent threat of pollution damage.
- Property damage including cleaning, repairing, or replacing property that has been contaminated by oil.
- Consequential loss refers to compensation for loss of earnings suffered by owners of property contaminated by oil, e.g., oiled fishing nets.
- Pure economic loss refers to compensation for loss of earnings caused by oil pollution on persons whose property has not been contaminated, e.g., closure of fishing area.
- Environmental damage includes payment for costs of reasonable reinstatement measures to accelerate the natural recovery of environmental damage.
- Use of advisers may be compensated for reasonable costs of their work when used to assist claimants in presenting claims within the scope of the Conventions.

The typical steps by which straightforward claims are settled are shown in Figure 1.4.

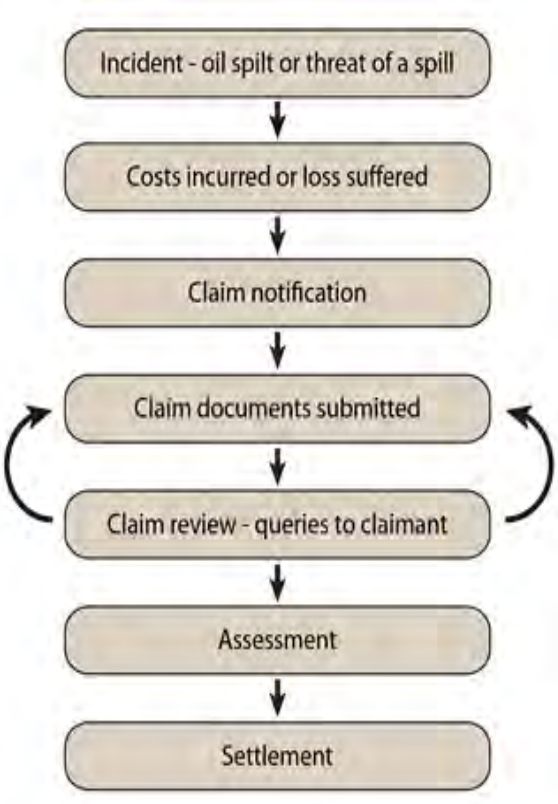

Figure 1.4. *Claims and compensation process for an oil or HNS incident. Source: ITOPF TIP No. 15 (2012)*

Guidance Sheet 11 provides more details about social and economic impacts from spills.

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2. Guidance Sheets on Engagement Topics

This section contains guidance sheets on key topics related to effective community engagement by the local authorities for oil and HNS spills. Oil and HNS spill topics and engagement in general is a process which is neither sequential nor separate. This guide, including the guidance sheets, should be considered an interconnected process which consists of overlapping themes, parts and issues. Spill responders have identified specific capabilities which must be achieved if the public is have a positive view of the response. The capabilities related to engagement are:

- The response organisation must be able to communicate and manage information internally and externally (the media and public).
- Co-ordination between government and industry must be pre-planned, account for stakeholder interests, and ensure a response organisation that will be cohesive and effective.
- The response organisation must meet the public's realistic and achievable expectations for response to the hazard.

The supporting topics addressed in the guidance sheets in this section are:

1. Community Resilience
2. Stakeholder Engagement
3. Community Liaison Representatives
4. Stakeholder Fact Sheets
5. Managing Perceptions
6. Risk Communication
7. Media Management
8. Social Media
9. Organising Volunteers
10. Managing Social and Economic Impacts
11. Recovery Planning

The guidance sheets present detailed information on each topic. The guidance sheets contain:

- Objective of the guidance sheet
- Definition of topic
- Planning actions (pre-emergency)
- Response actions (during emergency)
- Tips from the survey of 40+ experienced international responders
- References and/or useful links

Additional relevant information about response, regulations, research and the engagement process is presented in the other sections of this guide. The terms response organisation, response or incident management team, responders and practitioners are used interchangeably and refer to those organisations and individuals involved in directing, advising, and implementing options to mitigate oil and HNS spills in the command post or in the field. Table 2.1 shows how the guidance sheet topics support effective community engagement.

Table 2.1. Guidance Sheet Topics Support Successful Engagement

Indicator of Successful Engagement	Guidance Sheet Topics
The community trusts and has confidence in local authorities and the response organisation. **When to act:** During pre-spill planning when *Oil and HNS Appendix of the Community Emergency Plan and other related plans and procedures are developed* which helps builds community resilience; then update and refine the during response	1. Community resilience 2. Stakeholder engagement 3. Community liaison representatives
Community and stakeholder response expectations are realistic and achievable. **When to act:** Before, during, and after response. *Provide appropriate community input and resources into the spill strategic and tactical plans for response and recovery.*	1. Stakeholder fact sheets 2. Managing perceptions 3. Risk communication *… along with the previous guidance sheets*
Community leadership and stakeholders are engaged, communicate and exchange timely and reliable information that meets the needs of their constituency and the response, which will promote realistic and credible response decision-making, facilitate appropriate compensation for damages, and promote recovery. **When to act:** Before, during, and after response. *Provide appropriate community input and resources into the spill strategic and tactical plans for response and recovery.*	1. Media management 2. Social media 3. Organising volunteers 4. Managing social and economic impacts 5. Recovery planning *… along with the previous guidance sheets*

Guidance Sheet 1 - Community Resilience

Summary Points

- The Civil Contingences Act of 2004 recognises community resilience as an essential capacity for disaster recovery and requires preparedness planning to formally develop community resilience.
- A cornerstone of resilience preparedness is a Local Resilience Forum (LRF), which is a primary means of multi-agency co-operation at the local level. Local Resilience Forums bring together all the organisations that have a responsibility to co-operate under the Civil Contingencies Act 2004.
- Community resilience planning offers relevant preparedness opportunities for local authorities to engage community stakeholders prior to and during oil and HNS spills but this opportunity needs to relate to the National Contingency Plan organisational structure for resilience to be effective in these situations.
- The regulatory, research and response contexts discussed in Sections 3-5 of this guide and the stakeholder engagement process discussed in Section 1 presents information that LRFs and local authorities can use to cultivate meaningful and relevant community resilience specifically for oil and HNS spills.
- A high priority for local authorities should be encouraging the development of an oil and HNS appendix in the Community Emergency Plan.
- To mesh operational needs with community resources, a liaison from local authorities in the response management team needs to work with situation-appropriate community representatives.

Objective

The objective of this guidance sheet is to suggest ways to enhance existing community resilience efforts and promote community recovery from oil and HNS spills. Good planning involves working in partnership with local emergency responders to plan for various types of potential disasters which could include storms, fires, and significant oil or HNS spills. Ideally, community resilience planning for oil and HNS spill response will be completed prior to an actual spill response. If that is not possible, local authorities and the response management team should seek to leverage and build on existing relationships with the Local Resilience Forum (LRF) when a serious spill occurs.

Definition

Community resilience occurs when communities rally to help themselves cope during an emergency by drawing on their local capabilities and knowledge. They adapt in order to sustain an acceptable level of functional structure and identity. Community resilience occurs when communities and individuals are able to harness resources and expertise after an emergency, in ways that complement and reinforce the response of emergency services as part of the UK National Contingency Plan (NCP) response management team during serious oil and HNS spills.

Learn about the UK National Contingency Plan at:
http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-dops_cp_environmental-counter-pollution_and_response/mcga2007-ncp.htm

In order to promote *community resilience* members of the community can:

- Work together before a disaster to recognise and organise resources inside the community;
- Learn the actions they can initiate immediately after a disaster occurs; and
- Learn where to obtain additional resources to help them cope with the consequences of the event.

When a community is affected by an emergency but lives are not in immediate danger, a prepared community can act to contend with the event while waiting for help to arrive on-scene from emergency responders and other assistance to help speed the recovery process. This was evident during the *M/V Rena* oil spill in New Zealand when volunteers supplemented responder activities by helping with beach clean-up (Figure 2.1.1.), which was considered appropriate for that situation.

Figure 2.1.1. *Volunteers cleaning Papamoa beach in the 100th volunteer clean-up operation held since Rena grounded on Astrolabe Reef. 6 November 2011. Courtesy of Maritime New Zealand.*

PLANNING ACTIONS (PRE-SPILL)

In the UK, the Local Resilience Forum (LRF) is the principle mechanism for multi-agency co-operation at the local level is. LRFs are generally based on local police areas and bring together all the resilience organisations that have a duty to co-operate under the Civil Contingencies Act 2004 (CCA), along with others who would be involved in the response to an emergency. The LRF ensures effective delivery of those duties under the CCA that need to be developed in a multi-agency environment.

The principles of community resilience and the steps local leaders and citizens can take to facilitate community resilience following serious oil or HNS spills which may cause

Community Resilience

Community resilience creates an environment in which residents minimise the impact of an emergency and speed recovery by:

- Demonstrating a “can do” attitude.
- Working together and depending on one another.
- Using their existing capabilities and skills to respond until outside assistance arrives.
- Influencing decision-making for the best interests of their community.

socio-economic impacts at the local level include:

- Clearly define the community. For oil and HNS spills, would the community be defined by local police areas or another approach, e.g., geography, culture, population density, or another common feature, e.g., dependent upon renewable-resources (fishing)?
- Identify community networks that can become organisational and communication networks to activate people and resources, and use to provide on-going communications about the spill. Use the LRFs as starting point. Look at using existing networks, such as volunteer groups, neighbourhood watch, church groups, business associations, local internet-based groups, among others. Think about how these networks could be helpful in managing "*emergence*" which disaster sociologists say is likely to occur when a disaster occurs.

See Section 5 to learn more about emergence.

- Choose a Community Emergency Co-ordinator and form a local Community Emergency Group. This is a group that drives emergency preparedness efforts and co-ordinates with local emergency responders.
- Partnerships between different agencies and segments of the community will enhance the effectiveness of all.

Review Section 1 to learn about developing a process to identify and engage local stakeholders, and Guidance Sheets 2 and 3.

- Develop an oil and HNS appendix for the Community Emergency Plan.
- Consider the use of volunteers in oil and HNS spills and identify the organisation to manage them.
- When possible, conduct simulation exercises so local leaders and community groups can "*rehearse*" for actual emergencies and learn more about spill response. Professional trainers can be contracted to organise these exercises.

Components of a Community Emergency Plan may include:

- Local risk assessment (identify potential emergencies e.g. oil and HNS spills, impact on community and what the Community Emergency Group can do to prepare)
- Local skills and resources assessment
- Places of safety if a HNS spill requires evacuation
- Contact lists, telephone tree, and activation triggers
- List of community organisations (both government and Non-Governmental Organisations)
- First steps in an emergency

- Actions agreed with emergency responders
- Communication arrangements

For a useful Emergency Plan Toolkit and template for a community emergency plan, go to: **www.cabinetoffice.gov.uk**, search for "*community resilience resources*" and select: "*Community Resilience – resources and tools*" for these and other useful emergency planning documents.

- See Guidance Sheet 9 for more information about organising volunteers for spill response.
- See Section 3 to learn more about existing response plans, good practice guides, and other spill response resources.
- See Guidance Sheets 6, 7, and 8 which discuss prominent communication issues.

Response Actions (During Spill)

Emergency Services will respond to a call from 999 and assess the situation. If needed, local authorities will contact the local communities or groups to inform them of the situation and provide any instructions. Emergency Services will follow response actions designed by the response organisation and keep the local communities or groups updated as necessary, including directions for what actions need to be taken by the community.

If the local area has a Community Emergency Plan with an Appendix for Oil and HNS Spills, activate it after consultation with Emergency Services or use triggers previously-agreed upon with Emergency Services. When a spill of serious concern will likely result in shoreline impacts:

- Contact the Community Emergency Group and discuss the situation.
- The group will contact emergency responders to offer assistance and receive any instructions.
- The Community Emergency Group should meet with the liaison representative of the affected local authority involved in the response to discuss the situation, learn about concerns of the community, determine if volunteers should be utilised, and discuss what further actions are needed.
- The Community Emergency Group will activate appropriate plans as needed and when agreed upon triggers take place.
- Always remain outside a polluted area unless advised it is safe to enter.

See Guidance Sheet 3 on Community Liaison Representatives for oil and HNS spills and Guidance Sheet 9 on Organising Volunteers.

Assisting the response organisations is what community resilience is all about. Appoint a community liaison representative from the response management team to work with the Community Emergency Group and local volunteers. The community liaison representative can facilitate matching operational needs with community resources. The Community Emergency Group may also be able to assist with outreach to the affected community.

When the emergency phase of response has ended, the community needs to begin laying the groundwork for restoration activities.

- Tourism and fishing industries may be impacted by an on-water spill that also impacts the shoreline.
  - Seafood testing may be conducted by the Environment Group with the results communicated to the public
  - A clean-up priority may be to restore areas frequented by tourists
  - Marketing local seafood and tourist areas may be required
  - This includes recreational beach cleaning, restoration of fishing, etc.
- Use community networks to identify:
  - Areas that need rebuilding.
  - Available workers.
  - Those who can supply and operate required machinery and tools.
  - Those able to provide supplies.
- Local authorities can use pre-existing community networks to communicate with citizens and promote rebuilding.

See Guidance Sheets 5, 6, and 7 on addressing public risk perceptions.

See Guidance Sheet 10 for more information on managing social and economic impacts.

Recent experience in the *M/V Rena* and *M/T Heibi Spirit* oil spill in Korea demonstrates that community participation during spill response facilitates community resilience. The Bay of Plenty Regional Council, comprised of multiple local authorities provided the bridge between the community and spill response organisation.

Figure 2.1.2. Hine Otene from the Iwi Response Team enjoying the Volunteers Day, 11 March 2012. *Courtesy of Maritime New Zealand.*

Community Resilience
Tips from the Responder Survey

- Communities need to be reassured that the situation will be managed appropriately. They need to know that spill and emergency managers have previous experience with spills and disasters. They should know that responders prepare continuously and their efforts, together with those of the Community Emergency Group, will help the community make it through.
- Community resilience requires all stakeholders to "buy-in" to emergency preparedness by obtaining suitable instruction and training for those involved.
- When speaking to community members about the importance of community resilience efforts, give previous examples of when such efforts were successful during previous disasters to show how preparation has been essential for success.
- Local citizen knowledge can be invaluable for community resilience, and can also be used by local response authorities.
- It is important to increase awareness about designated shelters (locations and what to expect), ways to protect a person's property, policies on evacuation and emergency procedures.
- Confidence in the response organisation can be promoted through community outreach conducted by multiple agencies. It should be done to educate the public on the emergency preparations and plans made by agencies.
- Community drills in schools, development of media messages, and workshops to maintain community awareness of emergency preparedness are all important.

Case study – Cumbria flood (2009)

This case study involves a flood rather than an oil spill, but is a good example of community resilience. In November 2009, 60 Cumbrian communities in northwest England experienced a torrential downpour. As soon as news broke of the impending bad weather, the Cumbria Community Foundation initiated plans to set up a Cumbria Flood Recovery Fund. The fund raised more than £1m. Cumbria's "*strong volunteering ethos and density of activists*" was a significant factor in enabling the recovery of the region. The Foundation is working with sector partners from across Cumbria to research the contribution the sector has made in easing hardship in the immediate aftermath, as well as the longer term work of rebuilding social networks, enabling dispersed friends to connect regularly, supporting businesses and clubs with insurance claims, improving flood defenses, and sustaining the psychological health of people who, after three months of living away from home (perhaps with the relatives), were showing signs of stress. Action with Communities in Cumbria noted that "*Keswick had/ has one of the best emergency plans in place in the UK and this enabled a 'bounce-back' to 'Keswick is open for businesses in a matter of days*". Lessons learned from the Cumbria Flood:

- Community resilience is like a muscle which, when exercised, builds both strength and flexibility.
- Future social, economic and environmental disruptions may well be bigger and faster than we imagine – a 'perfect storm'.
- Especially in turbulent times, civil society plays a vital role examining the values underpinning local visions of 'community resilience'.
- Approaches based on community strengths and assets are core to resilience building**.**
- The disciplines of systems thinking and social capital underpin resilience thinking, stressing the importance of feedback (trust & learning), diversity (don't put all your eggs in one basket) and modularity (localised infrastructure).
- Policy makers are recognising resilience is a complex 'wicked' issue: dynamic, unpredictable and likely to confound 'command and control' mindsets.
- Funders can help by enabling local action groups and researchers to innovate together – and share their learning. This is most effective when people who wouldn't normally collaborate work together.

Source: Exploring Community Resilience in Time of Rapid Change. Nick Wilding, Carnegie UK Trust, August 2011.
http://www.carnegieuktrust.org.uk/carnegie/media/sitemedia/Publications/ExploringCommunityResiliencedownload.pdf.

ADDITIONAL INFORMATION

- For a useful Emergency Plan Toolkit and template for a community emergency plan, go to: **http://www.cabinetoffice.gov.uk/resource-library/community-resilience-resources-and-tools**
- To find a local council emergency plan go to Housing and Local Services on the **www.gov.uk** website and follow the labelled community safety and planning links.
- For a list of local resilience forums go to http://www.cabinetoffice.gov.uk/content/local-resilience-forums and http://www.cabinetoffice.gov.uk/sites/default/files/resources/110404-v5-Final-Role-of-an-LRF-A-Reference-Document.pdf
- For the Government's current assessment of the likelihood and potential impact of a range of different civil emergency risks go to http://www.cabinetoffice.gov.uk/resource-library/national-risk-register
- Informed Prepared Together website offers guidance for community emergency preparedness. www.informedprepared.eu
- Expectations and Indicators of Good Practice Set for Category 1 and 2 Responders http://www.cabinetoffice.gov.uk/sites/default/files/resources/expectations_set-parts1to3.pdf
- Cheong, S. 2012. Community adaptation to the *Hebei-Spirit* oil spill. *Ecology and Society* 17(3): 26. http://dx.doi.org/10.5751/ES-05079-170326

Guidance Sheet 2 - Stakeholder Engagement

Summary Points

- Planning for and during a pollution incident, local authorities are considered the owners of engagement with communities and other local stakeholders.
- Stakeholders are individuals or groups that are affected by an incident and the subsequent response actions. Spill responders are also key stakeholders. Identifying key stakeholder groups and individuals for oil and HNS spills is a fundamental step.
- Regular business of the police and other local responders serves as an initial foundation for building relationships with community members and groups.
- An international standard on stakeholder engagement which can be applied for oil and HNS spills is described in Section 1 of this guide. This standard promotes engagement as a planning activity. The standard encourages implementing the 5-stage process for stakeholder engagement pre-spill but the principles can also be applied during spill response.
- During an emergency response, stakeholder engagement begins with a community liaison representative from the response organisation reaching out to the community and other local stakeholders to learn about their concerns and questions.
- Successful stakeholder engagement creates an atmosphere of trust, credibility, and confidence between the community and response organisation. It also helps the community develop a realistic view of the response and what can/cannot be achieved.
- Stakeholders should recognise the need to adapt engagement activities to specific spill conditions.

OBJECTIVE

The objective of this guidance sheet is to suggest ways to improve existing stakeholder engagement for oil and HNS spills efforts based on an international standard, research and responder experience.

Stakeholder engagement should be carried out in effective and pro-active ways to support timely information sharing, decision making, claims processing, and community resilience. To achieve this, it is important to conduct engagement as a planned activity. This is accomplished by building on the resilience activities discussed in the previous guidance sheet, along with communications before, during and after incidents to provide stakeholders with an accurate understanding of the situation, potential for risks, impacts and recovery.

When an incident occurs and the response begins, stakeholders in the surrounding communities will naturally be concerned about how they or their businesses will be affected. The response organisation and local authorities must engage those stakeholders with two-way discussions and straightforward information. Successful stakeholder engagement increases confidence and trust in the response organisation and gives stakeholders a realistic outlook towards the response and effects. Failed engagement can result in misinformation, distrust, and unrealistic expectations.

Section 1 of this guide uses the research and response information contained in Sections 3 and 5 to apply The STAKEHOLDER ENGAGEMENT STANDARD AA1000SES (2011), an internationally-recognised benchmark for quality engagement, to oil and HNS spill preparedness.

DEFINITIONS

- Stakeholder engagement is a two-way process used by an organisation to engage relevant stakeholders for a clear purpose to achieve accepted outcomes. Outreach which consists primarily of one-way communications is not considered engagement for purposes of this guidance.
- A stakeholder is a group or person that will be directly affected by response organisation decisions and actions, such as fishermen. Stakeholders can be prioritised according to various criteria which should be defined.

Examples of community stakeholders:

- Politicians
- Fishermen
- Hoteliers
- Restaurateurs
- Travel agents
- Shop owners

- Stakeholders may reside in a community, but not everyone in the community is a stakeholder.
- Engagement can deliver mutually-beneficial outcomes by incorporating local input into the response organisation and by helping community stakeholders understand the spill response and claims processes so businesses and residents can resume their normal function in the community as quickly as possible.

PLANNING ACTIONS (PRE-SPILL)

Because local government has the most direct connection to communities, the “owners” of community engagement should be the local authorities. Stakeholder engagement should begin long before an incident occurs. Stakeholder engagement can be helpful to local authorities in day-to-day contact with residents and businesses in a community, whether emergency related or not. Police and other emergency responders work with stakeholders on community matters, such as neighbourhood watch, or school safety programs. Developing trust-based relationships is vital to effective stakeholder engagement for any purpose.

The pre-spill process detailed in Section 1 consists of a five-stage cycle as shown in Figure 2.2.1. The stages are:

1. Think strategically,
2. Analyse and plan,
3. Strengthen engagement capacities,
4. Design the process and engage, and
5. Act, review, and report.

Figure 2.2.1. Stages of engagement planning. Source: AccountAbility, Vol. 2, 2005.

Important activities in these stages include: defining the purpose and scope of engagement; mapping key stakeholders, the nature of their concerns and their potential roles and capabilities; boundaries and ground rules for sharing information; recommended engagement activities; and ways to learn from and improve engagement.

RESPONSE ACTIONS (DURING SPILL)

The ideal way to initiate engagement with stakeholders during oil and HNS spill response should be to follow procedures in the Oil and HNS Spill Appendix of the Community Emergency Plan.

Refer to Guidance Sheet 1 for information about developing and implementing Community Emergency Plans.

When an oil or HNS spill occurs, review the Community Emergency Plan, which should identify the activation triggers and thresholds, to determine the appropriate level of engagement for this incident. In every spill considered serious by the CCA, stakeholder communications should begin within one day, even if just through the media initially. Using the UK classification system described in Section 1 and 3 of the guide, Tier 2 and 3 spills would probably qualify as serious, although a Tier 1 spill could also be a serious event for a community, for example, a HNS spill that resulted in wide community evacuation and long-term contamination and required resources beyond the capabilities of one local authority.

In serious on-water spills which impact the shoreline, a Shoreline Response Centre (SRC) and Strategic Co-ordinating Group (SCG) will likely be established. The UK National Contingency Plan (NCP) states that the SRC management team should "*interact with elected representatives, central government, the public and the media; and to make appropriate arrangements to keep affected landowners informed and, where practical, consult significant landowners*." During spills with shoreline impacts, a liaison between the response organisation and the community can be established to facilitate the communications and ways to address spill-related concerns and questions.

See Guidance Sheet 3 for more information about community liaison representatives.

There may be good reasons for setting boundaries of stakeholder engagement and influence. These should be considered at the outset and shared with stakeholders and those who are responsible for liaising with the community.

As stakeholder engagement gets underway for an incident, the response organisation must determine who important stakeholders are for that situation. Often, a systematic approach works best:

1. Consider the location of the incident and the geographic area impacted.
2. Determine what stakeholders and industries will be primarily affected in that area and identify their initial concerns and questions.
3. Work outward from that point. In other words, determine what industries are then impacted by those that were first affected.
4. Using the techniques described in Section 1, prioritise stakeholders and the level of their concerns. (e.g., fishing industry vs. a tourists' gift shop).

Section 5 of this guide discusses community engagement and communications, including community uses of social media. Also refer to Guidance Sheet 8 to learn about social media as an engagement tool.

Affected stakeholders in the community may not wait for a response organisation to begin working with them. If they cannot obtain the information they want, research has shown that they will organise and begin sharing information with no input from the response organisation. This means they may begin forming opinions and judgment based on incomplete or inaccurate information about the situation. The response organisation possesses the most complete understanding of the spill situation. Engagement can be a means to help assure that stakeholders remain well informed about the situation.

Local authorities and the Incident Commander should discuss engagement opportunities and limitations and appoint a person responsible for developing an incident-specific engagement plan. Ideally, an outline of an engagement plan will be drafted before an incident - as part of the Oil and HNS Spill Annex of the Community Emergency Plan, and then tailored for the situation at hand. The plan should address at a minimum:

- Engagement objectives,
- Personnel roles,
- Methods for identifying which response questions and concerns to address and the process for approving information to share externally,
- Engagement activities and tools, e.g., stakeholder fact sheets (Guidance Sheet 4), and
- Policies and constraints related to funding, security, and safety.

A key person for engagement would be a liaison officer from the county or another trusted intermediary who could work with stakeholders, the community, and the media team. Ideally such a person should be pre-designated in advance of any incident so they can develop trusted relationships with the community before a spill occurs. This liaison should work with stakeholders directly to find out their concerns, needs, and relevant local knowledge as well as to work with all tactical response groups (environmental, fire, etc.) to make sure accurate information is communicated both to them and to stakeholders.

Stakeholders often have questions about potential risks, threats and impacts. They may disagree with response actions for various reasons, e.g., they may have a different understanding than responders about potential risks and mitigations strategies, or they may have different priorities than the responders. Conflicting opinions should be resolved and key stakeholders should be included in the

decision making process, when appropriate and possible.

With regard to safety, health and environmental risks, the Environment Group (EG) and/or Science and Technical Advice Cell (STAC) are the entities whose function it is to assess potential risks of impacts and to provide information to address risk perceptions to those responsible for external communications, e.g., media team and community liaisons. The media team, community liaisons as well as responders in the Tactical Co-ordinating Group (TCG) can provide information about public and stakeholder risk perceptions and reports about the actual behaviour and location of the pollutant from the field, which the EG and STAC can use in assessing those risks.

Learn more about risk perceptions and risk communication in Guidance Sheets 5 and 6.

Stakeholder Engagement
Tips from the Responder Survey

- Fishermen's associations should be used to represent and/or identify those stakeholders.
- Stakeholders should be invited to participate in the SRC to some extent. This was well received during the Rena response with local Iwi community.
- Have the science to back up some issues brought up during engagement. Having academics and researchers from scientific institutions is helpful to give some approaches more credibility.
- The response organisation must convey that all stakeholders' needs will be considered, even if they cannot be met in the timeframe desired by the stakeholder.
- Everyone wants to get involved, whether they are true stakeholders or not. It is vital to identify who really is a stakeholder in a response effort.
- During a protracted incident, more groups of stakeholders will be affected and become part of those who need to be supported.
- Organise the stakeholders into like groups or like concerns. Do not try to engage all of them at once or you will fall short with all of them.
- Form a useful and worthwhile volunteer programme to ensure that volunteers are participating in a truly meaningful manner.
- If you don't talk to stakeholders right away, someone else will talk to them first and they won't be delivering your message.

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Guidance Sheet 3 - Community Liaison Representatives

Summary Points

- Appointing a community liaison representative or officer assures that someone is responsible for engagement during a spill response. This individual should be someone who has familiarity with oil and HNS spills, the response regulatory framework, and previously worked with communities. They should be able to work well in the fast-paced environment of a response with the response organisation, local elected officials, stakeholders, the community resilience forum, and others.
- During response a lead liaison officer or representative should be established for each major spill, e.g., Tier 3 spills, and potentially Tier 2 spills. Establishing a shared foundation of trust and confidence is essential for successfully engaging and working with the community surrounding an HNS or oil spill.
- The effective use of a community liaison can enhance community resilience and speed recovery. Additional liaison representatives may need to report to the liaison officer if the geographic scope or volume of stakeholders necessitates multiple liaison personnel.
- Community liaisons require pre-incident training and practice co-ordinating and communicating internally with relevant parts of the response organisation, e.g., SCG and TCG, EG, and Media and Public Affairs Team, and externally with community representatives, other local stakeholders and their trusted sources of information.

OBJECTIVE

The objective of this guidance sheet is to discuss community liaisons as a means to support effective relations between the response organisation and the community through engagement.

This involves appointing community liaison representatives to be responsible for implementing stakeholder engagement, using risk communication approaches, co-ordinating the use of volunteers, and providing information on the processing of claims for socio-economic impacts. The proper use of a community liaison promotes community resilience and recovery.

During response to a serious HNS or oil spill, which is viewed by the community as a technological disaster, the community may express anger toward the party responsible for the spill, and distrust and scepticism about decisions and actions of the response organisation. The public may wonder if the response organisation is working hard enough, making the right choices, and cares about community needs. They may demand transparency without realising that sharing all information at all times may be legally prohibited, unwise, or simply premature. Rapid decisions often must be made with incomplete information.

Community liaison representatives can help the response organisation deal with the problem of emergence following a disaster. Disaster research tells us that (1) the perception that problems crucial to certain groups or individuals are unresolved, and (2) the heightened necessity for organisational co-ordination during a crisis leads to emergent organisations. Prior planning can preclude unnecessary

emergence but, since plans cannot anticipate all problems, some emergence will always occur following a disaster. Therefore, the response organisation must be flexible enough to manage by feedback, allow the emergence of problem-solving ad hoc organisational elements, and pro-actively manage their involvement in appropriate and helpful ways. A response can be hampered by negative views which are reported by traditional media and shared in social media.

- Learn more about response and the kinds of factors which affect response decisions in Section 3 of this guide.
- Learn more about community engagement implications of social research on disasters in Section 5 of this guide.

In order to successfully engage and work with the community surrounding an HNS or oil spill, establishing a shared foundation of trust and confidence is essential. Trust-based working relationships among members of the emergency response organisation and the community are important. The response organisation's community liaison representative has a primary role in developing and sustaining trust-based relationships.

Local authorities should appoint a liaison officer from the response management team to work with the Community Emergency Group and local volunteers, ideally during preparedness. The liaison officer can facilitate the alignment of operational needs with community resources and desires to speed the response and recovery. Community Emergency Group established under the CCA may also be able to assist with outreach to the affected community.

DEFINITION

The responsibility of achieving effective Co-ordination between the response organisation and the community rests within a liaison function. The liaison needs to be able to work closely with the response organisation, local elected officials, stakeholders, the LRF, Community Response Group, and others. The community liaison is typically a government member of the local community who becomes part of the response management team a during serious oil and HNS spill emergencies.

Community relations were a significant and successful part of the response to the recent oil and HNS spill from the *M/V Rena* grounding in New Zealand. The Incident Commander assigned responsibility for managing community relations to the Bay of Plenty Regional Council, which represented local authorities in the affected area. Figure 2.3.1 depicts this portion of the response management team organisation.

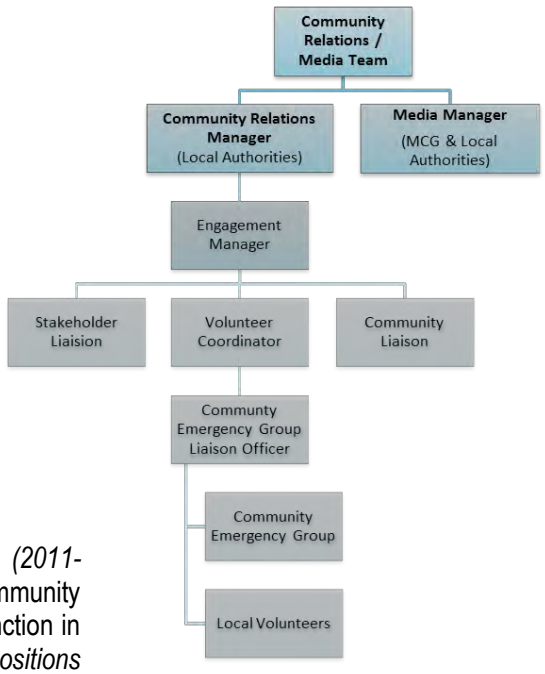


Figure 2.3.1. Example organisation from the *M/V Rena (2011-2012)*. The Bay of Plenty served as community liaisons through the Community Relations function in the response. *NOTE: Only a portion of the positions are shown in this diagram.*

Planning Actions (Pre-spill)

Local authorities through their CCA responsibilities may define roles and identify community liaison representatives for oil and HNS spill response. Since the UK National Contingency Plan (NCP) does not identify a community liaison representative as a standard position such action by local authorities may be necessary for implementing community engagement.

Pre-designated community liaison representatives or officers could provide a valuable preparedness services by leading or helping to develop an Oil and HNS Spill Appendix in the Community Emergency Plan. They could establish contact with community leaders and ask for their assistance to find out details of the community and its residents, and identify important stakeholders and existing groups that can be used to assist in organising the community (such as volunteer organisations, neighbourhood watch, and community resilience forums). Figure 2.3.1 highlights important capabilities of Community Liaison Representatives.

Response Actions (During-Spill)

Pre-designated community liaison representatives should be activated when a pre-established incident trigger occurs. The community liaison skills and activities which are important during response include:

- Quickly understanding the situation and facilitating communications between the community and the response organisation.
- Understanding and sharing the goals and priorities of the response organisation, the community and other local stakeholders.
- Bringing together responders, community members, stakeholders, businesses and resilience forums into a working partnership that operates with shared trust and understanding of the goals of others.
- Adapt to changing situations internally and externally.
- Consulting with the appropriate responders to assess the situation in relation to effects it may have on the surrounding community.
- Provide input into strategic and tactical objectives to reflect needs of the response organisation, the community, and stakeholders.
- Attempt to find win-win solutions and objectively seek agreement and compromise on others.

Capabilities of Liaison Representatives

Situational awareness. They should have the ability to quickly develop perspective on the scope, scale, and long-term consequences of the emerging emergency.

Facilitator of organisational success. They should be able to develop processes that bring together participating organisations and stakeholders in order to meet shared goals and objectives as the emergency develops.

Foundational awareness. The representative must develop a learning capacity to understand the goals, objectives, and missions of the response participating organisations.

- Anticipate upcoming problems between responders and the community and head them off before they occur.
  - Establish a programme to register and use volunteers for situation-appropriate, mutually-agreed tasks during response.
  - Gather questions and concerns from the community about the spill, perceived risks and help the response organisation develop effective ways to address them.
  - Ensure that current communication methods are sufficient or modify to enable quality communications with local stakeholders.
  - Schedule appropriate meetings and community open houses as appropriate for the situation.
- Co-ordinate with the media team, as necessary.
- Co-ordinate with local property owners and the SCAT (shoreline clean-up assessment technique) teams during shoreline clean-up.
- Work with the Recovery Co-ordinating Group (RCG) which is discussed in Guidance Sheet 11.

Effective communication to address community concerns and questions about the spill is a large part of the community liaison responsibility. Learn more about risk perceptions and communications in Guidance Sheets 5, 6, 7 and 8.

Community Liaison Representatives Tips from the Responder Survey

- Do not underestimate the need to establish protocols that include event triggers, communication methods, and participants.
- During an incident, follow established protocols and make changes to accommodate the additional numbers of participants that would be expected.
- Don't underestimate the commitment that is required to perform this function. It can be significant.
- Arrange private meetings between community representatives and response leaders.
- Have Incident Commanders work with community leaders to help select the right person to represent them. This could be an elected official or just a good communicator.

Guidance Sheet 4 - Stakeholder Fact Sheets

Summary Points

- Fact sheets should provide a concise yet technically-sound understanding about topics of interest.
- To promote their readability, fact sheets should be written by those with a general knowledge about the topic, and reviewed for accuracy by technical specialists, e.g., scientists, who are subject matter experts on the topic.
- Fact sheet content should focus on clarifying the topic and avoid jargon, unverifiable information or vague statements, as this can undermine the credibility of the content.
- Facts sheets should be written in lay language for a target audience without a college education.
- Fact sheets topics should be identified by listening to the questions and concerns of relevant stakeholders which for oil and HNS spills may include: media, community, elected officials, and NGOs.
- Stakeholder engagement conducted during preparedness can identify topics to address in pre-spill fact sheets. These can provide general information that is applicable to the local area and all spill incidents.
- During a spill, new fact sheets can be developed to address unique issues relating to a specific incident using a formatted template or existing fact sheets may be updated.
- The group creating the fact sheets should co-ordinate with members of the relevant agency/organisation when collecting information and for final review before it is released.
- Local authorities and the response organisation's web page should contain links to the fact sheets to ensure that they are easy to find and download.

Objective

The objective of this guidance sheet is to discuss the use of fact sheets to improve public understanding about response topics of interest.

Fact sheets can be customised and communicated externally to the media, elected officials, political officials, the affected community, and other stakeholders. They are intended to emphasise key points, be technically correct and accurate, yet concise and written in lay language. Fact sheets can be important tools for helping stakeholders understand what is happening during an incident. The public may not be familiar with response terminology which may be a source of misunderstanding. This situation can be addressed with fact sheets developed during preparedness.

Definition

Fact sheets are brief one to two-page summaries designed to clarify and explain subjects which may be controversial or unfamiliar to the public and stakeholders, e.g., "*What are dispersants?*" or "*What does toxicity mean?*" The goal of fact sheets is to provide credible and clear information on a topic. For example, laypeople may not understand the concept of toxicity since everything, even water, can be toxic to an organism of concern at a certain dose. Fact sheet content should be knowledge-based and

written as objectively as possible. To be credible, fact sheets should avoid messages intended to lead readers to a specific conclusion and they should explicitly and appropriately acknowledge when technical specialists and scientists disagree. Conversely, fact sheets should point out when there is consensus about confusing or controversial topics. This is a difficult balance to achieve. For example, it is well known among response practitioners (consensus) that dispersants have been studied for many years. However, consensus has yet to be achieved between response and academic scientists about the potential benefits and limitations of dispersants as a response option.

PLANNING ACTIONS (PRE-SPILL)

Working with stakeholders during preparedness is a good way to identify response topics of interest in the community. One way is by defining oil and HNS scenarios that are possible and of concern for the area, and then anticipating the issues of public interest/concern generated by the scenarios. Once the topics are agreed, they can be developed and shared to help educate the community about realistic oil and HNS spill response expectations.

Refer to Guidance Sheets 1, 2, and 3 to learn more about suggested opportunities for community engagement for oil and HNS spills.

The fact sheets can be loaded on a website, ready for use. Pre-developed fact sheets should provide general information about spill response that is applicable to all spill incidents, e.g., describe how the National Contingency Plan (NCP) works to establish a response organisation in the UK. These and other topics should be developed to provide the media, politicians, and community members with a better understanding of the process and procedures associated with a spill response. Using scenarios also helps define potential controversial issues, such as which oils could result in fishery contamination and how seafood is monitored after a spill. Experience has identified potential fact sheet topics that the public may be interested in, or be unfamiliar with, as listed in the box below.

When developing the fact sheets, it is advisable for the person or group creating the fact sheets to co-ordinate with members of the relevant agency/organisation in order to obtain the information needed for each fact sheet and have them provide a review for technical accuracy, clarity, and sensitivity before it is released. For example, co-ordination with the response health and safety team is necessary to ensure that any health and safety information contained within a fact sheet is totally accurate. It is also wise to involve trusted members and opinion leaders in the community who possess knowledge relevant to the topic. For example, pharmacists are knowledgeable about chemical interactions with human health. They would be good reviewers of dispersant fact sheets, especially if the community has questions about the information as it relates to human health.

Fact sheets are developed as an education tool about a topic of interest or concern, and should be able to stand alone, so they can be used by the media and others. As a community engagement tool, however, they should be discussed with stakeholders in meetings to achieve a shared understanding about the topic and address any additional related questions. They are not intended to the take place of personal discussions; they are a supplemental tool for engagement.

- A simple test for fact sheet readability is to ask family members to review them.
  - Do the fact sheets make sense or are they confusing?
  - What is the most important information gained by reading them?

- Some consideration should also be given to how the information will be shared.
  - Will social media be used to direct readers to these sheets?
  - Provide links to the fact sheets on the organisation's web page to ensure that the fact sheets are easy to find and download.

Potential Fact Sheet Topics

(which can be developed pre-spill)

- NCP Organisation
- Spill Potential: About Oil, Oil Types & Properties
- What is an Oil Spill Budget?
- Mechanical Recovery & Protection
- Controlled Burning of Oil In-situ
- Dispersants
- Toxicity
- Environmental Mapping for Spill Planning and Response
- Shoreline Assessment and Clean-up
- Wildlife & Environmental Impacts
- Oil/Dispersed Oil Fate & Ecological Effects
- Safety and Health: Public & Responders
- Seafood Safety
- HNS Chemicals – Data Sheets for those which are known to be produced or stored in large quantities in a community.
- Compensation/Claims Process

- ITOPF (www.itopf.org) has developed a series of Technical Information Papers on some of these topics. They are longer than fact sheets but also are written to be very readable, technically sound, concise, and in lay language.

Response Actions (During Spill)

When a spill occurs that puts a local community at risk, fact sheets prepared in advance should be reviewed as soon as an incident begins and updated as appropriate before distributing them to the media and community. The distribution of fact sheets should be incorporated into incident-specific plans for external communications using traditional and social media.

Some fact sheets created during preparedness efforts will need to be modified to reflect incident-specific conditions, for example, providing more detailed information about the specific oil, its properties and anticipated behaviour under the spill conditions. It is difficult to generalise about crude oil since many types exist with different properties. Spill conditions can change the way the pollutant normally behaves in the marine or coastal environment. See the Deepwater Horizon fact sheet example at the end of this guidance sheet.

Learn more about the important variables that affect response in Section 3 of this guide.

Providing such information about a spilled oil or HNS pollutant will help the community and the media understand potential environmental and human health and safety risks, as well as understand what to expect. When a spill occurs, local authorities should work with the Environment Group to develop a fact sheet on that specific spilled oil, including information about what they can expect if and when it arrives near or strands on shore.

Develop new fact sheets using a formatted template to address specific perceptions, concerns and questions associated with a response that is underway. A template format should:

- Be designed for a single page format, even if it is printed front and back.
- Begin with a definition of the topic and key terms.
- Include caveats, such as a reader note that "This information is current as of the following date xx. On-going studies may yield additional information that could result in revision of this sheet."
- A box to highlight 3-4 key facts the reader should understand about the topic.
- A placeholder for visuals to help explain the topic.

Updates about the situation also can be shared using fact sheets to address questions such as:

- What happened?
- Who is responding?
- What is being done today?
- What is being done to protect me and my property?

Tips on Developing Fact Sheets

- Assemble a fact sheet development team for each topic (primary author-a generalist-subject matter experts, and reviewers to read the final copy for accuracy, clarity and credibility)
- Clearly state the purpose of the fact sheet in the first paragraph.
- Use knowledge and science-based sources of information and include references.
- Put the most important information first.
- Concisely spell out three or four main take-away points.
- Give simple definitions for specialised terms.
- Write it in lay language that is understandable by people of all ages and at the average grade level of the community. To be regarded as credible and intelligent, avoid complex language especially for familiar concepts.
- Make the format attractive and professional. For printed materials, maximize the contrast between characters and the background. Text is more likely to be believed if text is printed in bright blue, or red, rather than in middle shades of green, yellow or pale blue.
- Consider including relevant case studies or lessons learned.
- Define the limits for applying this information, e.g., all oils are not dispersible.
- Design each sheet so it can be a stand-alone document that can be distributed without other documentation. If they are part of a set, list the other sheets in the set.
- For use during response, aim for length of one to two pages so it can be printed on a single sheet of paper. For preparedness, concise writing in lay language to convey complete understanding of the topic, even if it takes several pages.
- Make use of bullets and explanatory graphics.
- Explain common terminology and address basic or common questions.
- Contain appropriate caveats including a prominent notice that the information was developed or updated on a specific date, e.g., “Updated <date> and <time>” and “Please Note: some numbers are estimates and many of these numbers are subject to change.”

Stakeholder Factsheets
Tips from the Responder Survey

- Fact sheets should be relevant to their audience and consider stakeholder questions and use of the information during their preparation.
- Fact sheets can be good sources for media talking points and messages.
- Use ITOPF TIPS and IPIECA guides as sources in fact sheet preparation, or provide links to download.
- Fact sheets are sometimes most effective in conjunction with face-to-face discussions.
- If fact sheets are not pre-written and vetted, determine the incident specific info sheet vetting process within the first 24 hours of an incident. Consider including lessons learned from previous spills for some sheets with information about how a particular company or organisation can respond to an incident, or historical performance to other incidents.

Deep Sea Subsurface Oil Assessment

September 2010

Subsurface oil refers primarily to offshore and deepwater oil that was released near the sea floor and is suspended as very small droplets below the water's surface. This includes chemically-dispersed oil from subsea injection and/or aerial application of dispersants on the water's surface. These droplets of oil typically are too small to be seen and do not sink. These oil droplets stay suspended in the water column or rise very slowly because of density differences, physical processes at sea, or because they mix with suspended particulates. Subsurface oil has an extremely low potential to land on the shore or in marshes.

Overview

The detection and monitoring of submerged oil is a joint effort that includes NOAA, BP, EPA, academics and others, and is coordinated by the Subsurface Monitoring Unit (SMU) based in the Unified Area Command. Both federal and contracted vessels are currently sampling along grids for indicators of the subsurface oil. The data collected by onboard scientists are transmitted to shore, and the results and modeling are used to plan future areas to be sampled. Samples are analyzed on board, and additional water samples are sent to EPA labs for analysis.

Looking for indicators of subsurface oil

One of the most useful tools in the search for dispersed oil underwater is the CTD (conductivity-temperature-depth), which is attached to a rosette containing Niskin bottles used to collect water. As the CTD rosette is lowered to depths as great as a mile or more, it records several important parameters: temperature, salinity, dissolved oxygen, and fluorescence. As it returns to the surface, the niskin bottles are programmed to collect water samples at certain depths. The water samples are sent to onshore labs for analysis of the presence of oil, rate of natural degradation and whether it is from the Deepwater Horizon (DWH) wellhead or from another source, such as naturally occurring seeps of oil from the ocean floor. These take a few weeks to analyze, but other results can be used more immediately to determine if oil might be present and to guide further sampling.

Things You Should Know About Deep Sea Oil

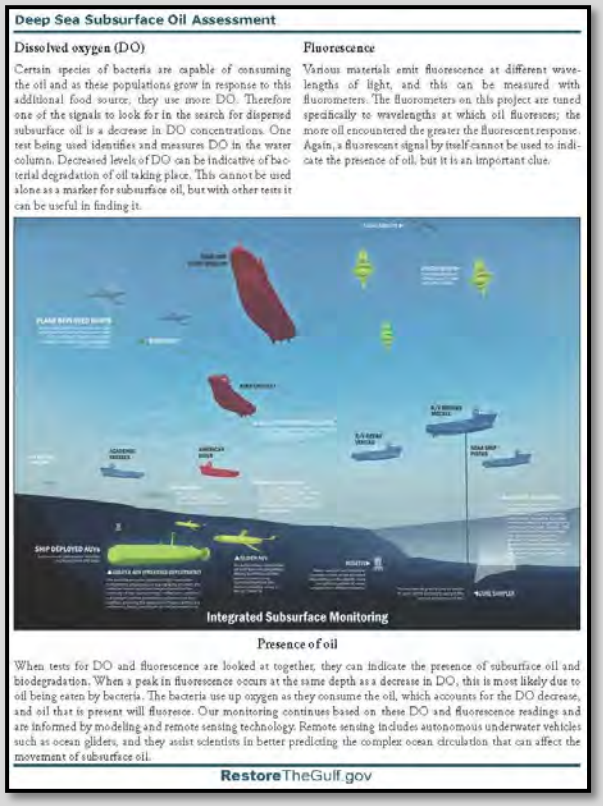
1. There is not a "river of oil" under the surface.

Presently most of the concentrations of submerged oil being found are less than 1 part per million (ppm)

2. The oil that is still present is a "cloud" of microscopic particles that are constantly changing.

This submerged oil is dispersed and rapidly changing in size and extent due to natural processes such as microbial and chemical degradation, diffusion, and dissolution. It is no longer present in concentrations that can be cleaned or removed at sea.

RestoreTheGulf.gov



Deep Sea Subsurface Oil Assessment

Dissolved oxygen (DO)

Certain species of bacteria are capable of consuming the oil and as these populations grow in response to this additional food source, they use more DO. Therefore one of the signals to look for in the search for dispersed subsurface oil is a decrease in DO concentrations. One test being used identifies and measures DO in the water column. Decreased levels of DO can be indicative of bacterial degradation of oil taking place. This cannot be used alone as a marker for subsurface oil, but with other tests it can be useful in finding it.

Fluorescence

Various materials emit fluorescence at different wavelengths of light, and this can be measured with fluorometers. The fluorometers on this project are tuned specifically to wavelengths at which oil fluoresces; the more oil encountered the greater the fluorescent response. Again, a fluorescent signal by itself cannot be used to indicate the presence of oil, but it is an important clue.

Integrated Subsurface Monitoring

Presence of oil

When tests for DO and fluorescence are looked at together, they can indicate the presence of subsurface oil and biodegradation. When a peak in fluorescence occurs at the same depth as a decrease in DO, this is most likely due to oil being eaten by bacteria. The bacteria use up oxygen as they consume the oil, which accounts for the DO decrease, and oil that is present will fluoresce. Our monitoring continues based on these DO and fluorescence readings and are informed by modeling and remote sensing technology. Remote sensing includes autonomous underwater vehicles such as ocean gliders, and they assist scientists in better predicting the complex ocean circulation that can affect the movement of subsurface oil.

RestoreTheGulf.gov

During the 2010 Deepwater Horizon well blow-out in the US Gulf of Mexico, the release of oil from the sea floor resulted in many new questions about subsurface oil. In that situation, it was necessary to observe and take samples before addressing these new stakeholder questions. It took time to sample and assess oil released subsea, evaluate the results, and consider how to explain this form of oil, and then draft the fact sheets which are shown above.

Developing this fact sheet required developing incidents-specific definitions to explain the difference between subsurface oil and submerged oil, which was visible nearshore and was weathered surface oil. This fact sheet incorporated risk communication principles, and required considerable internal co-ordination and consensus among technical specialists and scientists working in the command post and the field.

The factsheet above can be viewed in full at:
http://www.restorethegulf.gov/sites/default/files/documents/pdf/DeepSeaOilAssessment-lowres.pdf

A wide range of fact sheets were developed during this incident and they can be viewed at: http://www.restorethegulf.gov/task-force/education-resources/fact-sheets

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Guidance Sheet 5 – Managing Perceptions

Summary Points

- Pro-actively manage perceptions because that which is perceived as real, is real in its consequences. When people are stressed and upset, the gap between perceptions and reality often becomes wider.
- Public perceptions, concerns, and their desire to learn more about the spill needs to be addressed as they arise, and preferably by the technical specialists in the response organisation, e.g., Environment Group (EG) or Shoreline Response Centre (SRC).
- Due to widespread social media use, public perceptions will quickly begin forming and will be shared. Allot time and resources to address social media questions since this is a common source of information today.
- Perceptions, trust and credibility are closely interconnected. The response organisation may need to engage with and educate trusted individuals in the community. These are people who have trusted relationships with community members and are viewed as credible, e.g., community health workers, physicians, and business association leaders. These trusted sources of information can be valuable partners in addressing perceptions about the spill and relationships with them can be developed during preparedness.
- The response organisation has the most current and accurate information about the situation status and what is being done to mitigate the situation, potential risks and impacts. This is the content which is needed to address perceptions.
- Tools and strategies for managing perceptions include: stakeholder engagement, risk communication, fact sheets, media management, and social media.
- When a spill is viewed by the public as a technological disaster, the problem of emergence (discussed in Section 5) may occur if risk perceptions are unaddressed and become a hindrance to response.

Objective

The objective of this supporting topic is to discuss how local authorities can help pro-actively and effectively manage stakeholder perceptions about risks and threats of impacts on people and the environment from oil and HNS spills. Being pro-active means listening for stakeholder concerns and questions, working with the response organisation assessing risks and threats, and managing all external communications, whether they are through traditional media, websites, social media, or in face-to-face meetings.

Definition

Perceptions are the way in which something is regarded, understood, or interpreted and are generally derived from what people hear, know, or experience. Risk perception has been defined variously as subjective judgments of probable harm or loss (Bostrom, 2005). People's behaviour depends on their risk perceptions (Bostrom, 2005). When people are stressed and upset, the gap between perceptions and reality may widen (Covello, 2007), but sometimes stress can sharpen perception and performance. Comparisons of lay and expert risk perceptions, together with research on the effects of risk communication, illustrate that expertise and information can have large effects on risk perceptions. As

intuitive statisticians, both experts and non-experts are subject to predictable judgmental biases (Fischhoff et al. 2002; Kahneman, Slovic, and Tversky 1982).

Stakeholders, the community, and the public obtain information from many sources, e.g., through media reports or through social media and personal communications, which influence their perceptions about the response, e.g., progress, risks and impacts. During an emergency, research has shown that people have limited capacity to accurately hear and process information. Perceptions about risk and sources of information about risks involve many factors including among others: trust, the degree to which experts listen and care, expert competence and specialty, honesty and transparency, the control over exposure to risks, how fairly exposure to the risks is distributed across the community, and how the information is presented visually. Personal experiences affect concerns and risk perceptions, though if not repeated their effects may disappear over time. Research indicates that people's perception of risk is a function of two main sets of risk perception factors:

- Those reflecting the degree to which the risk is unknown or unfamiliar; and
- Those reflecting the degree to which the risk is dreaded.

Unknown risks include those that are uncertain, not well understood, unobservable, new, or have delayed consequences. Dread reflects the degree to which something is perceived to be potentially catastrophic, involuntary, uncontrollable, affecting future generations or unfair. Media coverage and public demands for regulation tend to be greatest for those events, activities or technologies perceived to be the most unknown and dreaded. Oil and HNS spills like the *Exxon Valdez* and Deepwater Horizon oil spills, from a community perspective, are associated with both unknown and dreaded risks (Hyer and Covello, 2005).

It is important to remember that people who are stressed and upset want to know that **you care** before they care what you know.

An information source or speaker, e.g., a leader, communicator or expert, develops trust with an audience primarily through caring and empathy which is assessed in first 30 seconds as shown in Figure 2.5.1. They are also judged by their honesty and openness, competence and expertise, commitment and dedication, and respect for the public and press. Non-verbal communication can account for up to 75% of the message a person takes away from a meeting.

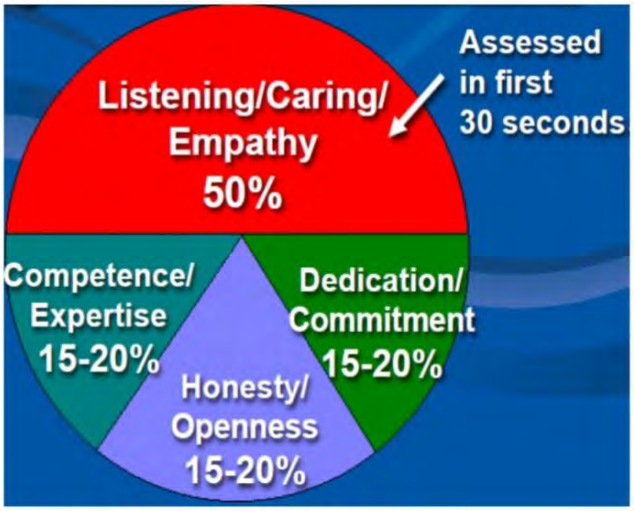

Figure 2.5.1. *Trust factors in high concern situations. Source: Covello, 2007*

In the context of an emergency response, risk perception is the way a stakeholder views the threats to something they value from a spill or incident, the quality and success of the response, and the abilities of the leadership involved. As the saying goes, when it comes to those outside a response who are trying to understand what the truth is about a situation, *"Perception is reality"*. A well planned, well executed, and successful

response can still be viewed as a failure if the public has a poor perception of what occurred and why. Many of the aspects about spills are complex, highly variable, and can be poorly understood, which is a primary reason that Section 3 is included in this guide.

Planning Actions (Pre-spill)

Engagement during preparedness, like that required under the CCA, builds trusted relationships which becomes the foundation for pro-actively managing perceptions during response.

Section 1 of this guide discusses oil and HNS spill stakeholder engagement. Guidance Sheet 1 describes preparedness activities to build community resilience.

Actions which can be implemented pre-spill to support pro-active management of perceptions include among others:

- Identify stakeholders and their questions and concerns about oil and HNS spills. Develop a stakeholder map (See Section 1).
- Identify risks for spills to occur in the area.
- Identify trusted individuals for stakeholder groups and issues of concern.
- Meet with spill authorities in the area, e.g., harbour authorities, spill practitioners or other specialists, including industry, and trusted individuals to discuss stakeholder questions, concerns, and topics of interest.
- Develop fact sheets to educate the community about identified issues and topics.
- Involve the media team from the local authority in these activities.
- Identify social media networks to use during an oil or HNS spill. Establish procedures to use social media tools (Twitter, Facebook, etc.) in co-ordination with police and the Dyfed Powys Media and Communications Group. Establish social media accounts before any incident occurs.

Learn more about using social media as a tool for managing risk perceptions in Guidance Sheet 8.

Response Actions (During Spill)

The response organisation should begin managing perceptions as soon as the spill occurs. Perceptions should be managed by timely pro-active engagement and informed communications, especially through trusted relationships. Especially during the early stages of an emergency, when the full situation is still uncertain and being revealed, external communications need to be very thoughtful and help set realistic expectations. A predictable question during an oil spill is "*How much was spilled?*" The public probably does not realise that it takes time to provide an accurate, quantitative answer to this question. If a number is provided without being sure, any subsequent change to that number can result in a negative

perception about the response, and undermine the credibility of the response organisation going forward.

The Media Team will be responsible for external communications with traditional media, e.g., press, television and radio; they also may be responsible for social media communications. The content for external communications, however, will come from other parts of the response organisation.

The EG and/or STAC are the entities whose function it is to assess potential risks of impacts and to provide information to address risk perceptions to those responsible for external communications, e.g., media team and community liaisons. The media team, community liaisons as well as responders in the TCG about public and stakeholder risk perceptions and reports about the actual behaviour and location of the pollutant from the field, which the EG and STAC can use in assessing those risks. Community liaison representatives can activate and leverage the relationships developed during preparedness with community members and trusted individuals as additional ways to help manage perceptions about the spill.

Guidance Sheet 3 discusses community liaison representatives who can help manage perceptions about oil and HNS spills. Media management is covered in Guidance Sheet 7.

The community liaison will make contact with community authorities, local leaders, and trusted individuals to develop a relationship based on two way communications and trust. Information exchange should be as frequent as needed to address perceptions, questions and concerns. The community's trust may be undermined if questions go unanswered and concerns are not addressed in a timely manner. Once the liaison, response organisation, and police learn more about what people need to know they must work with different response groups to provide the information to the public directly as well as to other sources used for public information, such as the media, local leaders and local trusted individuals.

Follow risk communication principles, as discussed in Guidance Sheet 6, when developing external communications to address risk perceptions.

When working with the community, the response organisation's liaison needs to determine what information stakeholders want and need, provide it, and then find out what they need next. In order to forward a correct picture of the situation and response, the community liaison representative needs to define:

- Key stakeholder perceptions. They are often different from those within the response organisation.
- Community concerns.
- What types of information will be most useful to local stakeholders and community members.

Addressing these needs can be done in multiple ways:

- Direct conversations during open houses and community meetings.

- Working with local leaders, who will have more information from local stakeholders.
- Interaction through social media (Facebook, Twitter, blogs, etc.).
- Opinion surveys.
- Talking to people on beaches, marinas, parks, etc.
- Watching interviews on the news.

Community leaders also have a role in managing perceptions around an incident. They can:

- Manage the expectations of stakeholders by being informed opinion leaders. They will need guidance on what to expect regarding spill duration, disruption and impacts on their community.
- Work with the response organisation's Media and Public Affairs Team to ensure consistent information is shared. Inconsistent information from government authorities undermines credibility and trust and can exacerbate negative perceptions and stress on affected communities.
- Hold community and stakeholder open houses to provide opportunities for the community to gather accurate information from responders, and ask questions. Open houses are also useful opportunities for the response organisation learn directly about community concerns.
- Direct stakeholders to known reliable sources of information (experts, trusted individuals, press releases, websites).

Pro-active management of perceptions can:

- Give a community hope for a strong and resilient recovery that addresses their concerns and considers their input in setting protection and clean-up priorities. Disasters can have a significant psychological effect on those impacted by the incident. Local leaders need to rebuild people's confidence in their safety, future, and the future of their community.
- Help market, maintain and rebuild the tourism industry. Potential tourists need to know that the area is, or will be, "*open for business*" and has the same appeal it did before.
- Help market, maintain and rebuild the fishing industry. The seafood market can be seriously impacted by an incorrect perception that fish or shellfish from an area near a spill is somehow contaminated or tastes different. The fishing industry can experience devastating economic losses resulting from erroneous public perceptions.

Additional Information

Bostrom, A. "Risk Perception" in Mitcham, Carl (Ed), Encyclopedia of Science, Technology and Ethics. MacMillan Reference, 2005.

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Guidance Sheet 6 - Risk Communication

Summary Points

- Risk communication is a form of external communication. It involves learning about and developing communications to address risk perceptions.
- High concern situations change the rules of communication.
- The key to risk communication success is anticipation, preparation, and practice.
- Comparing the way lay people perceive and think about risk (their "*mental model*") in relation to expert thinking (expert mental models), provides insight into how to improve the content of all external communications.
- An initial step is identifying stakeholder concerns and perceptions about risks, including knowledge gaps or misunderstandings in relation to experts. Understanding what people are concerned about and their gaps is used to design external communications to provide a more complete understanding.
- Lay people are capable of accurately understanding technical information about risks when the information is prepared in lay language, and the effort is made to clearly define the meanings of technical terms, to use visuals to illustrate complex concepts when possible, and to give an opportunity for feedback about whether the content succeeded in addressing perceptions, concerns and questions.
- There are at least 14 different risk communication approaches.
- Risk communication principles can be applied during preparedness and response.

OBJECTIVE

The objective of this guidance sheet is to suggest ways to apply risk communication principles during preparedness and response and thereby strengthen stakeholder engagement and communication. Risk communication is an approach for addressing community perceptions specifically about oil and HNS spill risks. Effective risk communication supports other aspects of community engagement:

- Media management - develop effective messages about risk,
- Stakeholder engagement - build trust and credible relationships,
- Community resilience - provide a mutually-beneficial vehicle for community input, and
- Recovery planning – enable dialogue about potential impacts and options.

Risk communication is an interactive form of external communication. Messages delivered through media outreach about perceived risks may not suffice because stakeholders (elected officials, community, academic researchers, etc.) sometimes question the source and content of the messages. Many stakeholders want to know additional details to form their own judgments about risks. Effective real-time communication during an oil spill, therefore, must provide for rapidly incorporating risk communication techniques and crisis communication, which traditionally have been the responsibility of public affairs, public relations, external communications, or crisis communication specialists.

This fact sheet discusses ways the local authorities can help implement effective risk communication during preparedness and response to oil and HNS spills by working with spill practitioners and other experts, e.g., public health officials and scientists, learning about stakeholder risk perceptions through engagement and the media, and improving external communication messages using risk communication principles.

DEFINITION

Simply defined, risk is a threat of loss, real or perceived, of that which we value and risk communication is the exchange of information about risks (Covello, 2007).

Other detailed definitions by researchers are shown in the box to the right. What is important is that effective risk communication needs to be a 2-way exchange of information and the credibility of that information is essential.

Risk communication is research-based with over 8,000 articles in peer-reviewed scientific journals and over 2,000 books (Covello, 2007). This research guides risk communication theory and principles. For example, past psychological research demonstrated that there are limits to people's capacity for processing information, and that the limit is about seven pieces of information, facts, or numbers (Miller, 1956). This is one reason that many phone numbers consist of seven digits, often split into three + four digits.

When people are stressed or concerned as they are in an emergency including an oil spill which affects a community, they have difficulty hearing, understanding and remembering information and:

Risk Communication

Risk communication includes actions, words, and other *interactions* that incorporate and respect the perceptions of the recipients, intended to help people make more informed decisions about threats to their health and safety (Ropeik, 2008).

Risk communication is the interactive process of *exchange of information* and opinions among individuals, groups, and institutions concerning a risk or potential risk to human health or the environment (NRC, 1989).

Risk communication means communication intended to supply lay people with the information they need to make *informed, independent judgments* about risks to health, safety and the environment (Fischhoff, 1990; Gow and Otway, 1990 – p.4).

- The gap between reason and emotion (risk perceptions) often becomes wider.
- They focus most on what they hear first and last.
- They typically focus much more on negative information than positive information.
- They typically process information at four grades below their education level.
- They typically seek out additional third party sources of credible information.

The primary objectives of effective risk communication before, during, and after an emergency are to:

- Build, strengthen, or repair trust;
- Educate and inform people about risks;

- Build consensus or encourage dialogue about appropriate actions to take in the event of an emergency;
- Raise community awareness of plans for responding to an emergency;
- Disseminate educational information on actions people should take before, during, and after an emergency;
- Encourage people to take appropriate actions during and after an emergency (Covello, 2005).

Effective risk communication provides people with timely, accurate, clear, objective, consistent, and complete risk information. It is the starting point for creating an informed population that is:

- Involved, interested, reasonable, thoughtful, solution-oriented, cooperative, and collaborative;
- Appropriately concerned about the risk;
- More likely to engage in appropriate behaviours. (Hyer and Covello, 2005)

Planning Actions (Pre-spill)

Risk communication principles can be used when conducting pre-spill community engagement activities. Literature and experience have demonstrated that the key to risk communication success is anticipation, preparation, and practice. Steps for applying risk communication for oil and HNS spills during preparedness include:

1. Identify a risk communication issue or scenario
2. Identify the primary stakeholders/target audience
3. Identify potential questions or concerns
4. Develop key messages using message mapping
5. Develop supporting information for key messages
6. Test and practice messages
7. Deliver messages through appropriate communication channels

- Use the stakeholder engagement process described in Section 1 and community resilience planning in Guidance Sheet 1 to implement risk communication activities.
- Use Stakeholder Fact Sheets, described in Guidance Sheet 4, for obtaining technical content for messages.
- Work with the Media and Public Affairs Team to develop public messages using risk communication message mapping as described in Guidance Sheet 7.

RESPONSE ACTIONS (DURING SPILL)

Responsibility for risk communication needs to be assigned and co-ordinated within the response organisation to pro-actively assess risk perceptions in relation to the actual situation. Effective risk communication during response warrants specific assignment of responsibility and leadership because it requires specialised external communication from credible and trusted sources informed by accurate technical content. Therefore, the individual responsible for risk communication also will need to manage information exchange and co-ordination internally, that is, among other functions responsible for external communication in the response management team, e.g., response media team and community liaison representatives. For example, technical information about ways to effectively remove pollutants from the environment should be obtained from Environmental Team members who can provide accurate content for external communication. Another internal source of information about safety risks to workers and the public might be industrial hygienists involved in the response.

Aspects of a response which could be controversial and/or associated with inaccurate perceptions of risk and therefore may benefit from risk communication include:

- Addressing risk perceptions about the pollutant, its hazards, appearance and behaviour;
- Protecting public health and safety from pollutants and response options which may be perceived as hazardous, like dispersants or controlled burns, even though mechanical options can also have hazards, such as falls;
- Assuring that seafood from an affected area is safe to consume; and
- Providing input on priority setting for shoreline protection and clean-up.

External communication often occurs on several fronts: media, government and elected officials, community stakeholders in the area, such as tourism boards, fishing associations, local university scientists, and NGOs.

Co-ordination between the responders and governmental authorities outside the command post is very important to avoid issuing contradictory messages about the response, contributing to public confusion about the spill, and undermining public confidence in the decisions of the response organisation. This problem was noted in the risk communication lessons from the *T/V Prestige* oil spill in Spain (see below). The appropriate agencies with whom to co-ordinate external information will depend upon the particulars of the response, such as geographic location and proximity to shore, time of year, and magnitude of the pollution and potential impacts.

Community liaison representatives can help gather information about community concerns and risk perceptions to share with the response organisation as well as to facilitate appropriate engagement opportunities with trusted sources and community discussions and input. The Media Response Team for the incident will be responsible for public release of information which originates inside the response

Also refer to the Guidance Sheets noted below for additional information about ways to share information externally with the media, public and community stakeholders:
3 - Community Liaison Representatives
5 - Managing Perceptions
7 - Media Management
8 - Social Media

organisation and determining how that information is released to the public.

Trust and credibility are essential to effective risk communication, especially in emergency situations. Research indicates that trust is more likely to be strong where:

- Organisations are clear about their values and goals;
- There is openness and transparency about decisions;
- The organisation is the first to announce bad news;
- Early warnings have been provided;
- Decisions are clearly grounded in scientific evidence;
- Public values, concerns and perceptions are taken into account in decision-making;
- People perceive that authorities share their values;
- Sufficient information is provided to allow individuals to make balanced, informed judgments;
- Mistakes are quickly acknowledged and acted on by authorities;
- Actions are consistent with words (judgments about trust often depend more on what is done than on what is said);
- Uncertainty is acknowledged;
- Excessive reassurance is avoided;
- Others with high credibility support your statements and positions; and
- Outrage and the legitimacy of fear and emotion are acknowledged.

The most important factors involved in trust include perceived (Hyer and Covello, 2005):

- Listening, caring, empathy, and compassion;
- Honesty, openness, candidness, transparency, and accountability;
- Expertise, competence, and wisdom;
- Perseverance, dedication, commitment, and responsiveness; and
- Objectivity, fairness, and consistency.

These research findings have been incorporated throughout this guide because they will enable local authorities to implement effective community engagement. Community engagement as presented in this guide is intended to cultivate trusted relationships and identify trusted individuals in a community during preparedness to enable effective engagement and communication especially about risks during oil and HNS spills. Implementing effective engagement with good risk communication will help local authorities avoid communication mistakes like those made during the *T/V Prestige* oil spill in Spain.

Communication Mistakes during the *T/V Prestige* Oil Spill (AMPERA, 2007)

1. Unidirectional communication (lack of interaction with audience).
2. Contradictory messages between different governmental spokespersons.
3. Unclear messages: ambiguous and confusing terminology.
4. Absence of an independent expert voice to justify the governmental actions.
5. No self-criticism in the message, minimising the crisis and consequences.
6. No channels of direct communication with those affected in local area suffering from the accident.
7. Lack of online information and information tailored to needs of media.
8. Crisis without a controlled end by the response authorities (no quick economic and environmental impact assessments).

ADDITIONAL INFORMATION

Fischhoff, B., Noel T. Brewer, and Julie S. Downs, editors. 2011. **Communicating Risks and Benefits: An Evidence-Based User's Guide.** Food and Drug Administration (FDA), US Department of Health and Human Services. Retrieved from http://www.fda.gov/AboutFDA/ReportsManualsForms/Reports/ucm268078.htm

Hyer, R. and Covello, V.T. 2005. **Effective Media Communication During Public Health Emergencies: A World Health Organisation Handbook**. Geneva, Switzerland: United Nations.

Miller, George A. (Department of Psychology, Princeton University). 1956. "**The Magic Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information**." The Psychological Review, 1956, vol. 63, pp. 81-97.

Reynolds, B. et al. 2012. **Crisis and Emergency Risk Communication**. Centers for Disease Control and Prevention, Washington DC. Retrieved from http://emergency.cdc.gov/cerc/pdf/CERC_2012edition.pdf.

Tips and Suggestions

Pre-incident

Identify key stakeholder groups and trusted sources of information for those groups at the community level. Please also refer to Stakeholder Engagement guidance sheet.

Reach out (via a meeting or correspondence) with identified trusted sources during preparedness to: (1) explain the system of incident response, e.g., organisations, plans, procedures, and potential topics of mutual interest, and (2) invite them to explore opportunities for future cooperation and co-ordination.

During the Incident (When and How to Initiate)

Risk communication should be activated when an incident is characterised by heightened community and/or public concerns about environmental, health and safety risks and when response management decisions are controversial. These situations include oil spills, like Deepwater Horizon (risk perceptions about the risk and benefits of response options, e.g., booms, dispersants, and in-situ burning, as well as seafood safety), and other events caused by persistent hazmat releases or terrorism, e.g., anthrax or airborne hazards.

The Incident Commander should identify who would be responsible for risk communication and define objectives for that set of response activities. The designated individual should have qualifications and experience in the following: stakeholder engagement, technical co-ordination, and risk communications. Additional qualifications in media communications are desirable, but not essential to carry out these responsibilities.

Post-incident

Identify lessons learned from oil and HNS responses, possible face to face meetings before the end of a response, or through a follow up questionnaire or meeting.

Share those lessons and determine how best to incorporate them into improving future responses, such as by refining plans for future cooperation.

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Guidance Sheet 7 - Media Management

Summary Points

- Effective engagement with the media is the primary way to inform the public about the response.
- A Media Crisis Team, or media team, is usually established to manage all aspects of media communications during larger incidents.
- The importance of providing the media with timely and accurate information during a response, in accordance with their deadlines, even when incomplete, has long been recognised as a priority.
- As with other topics that support effective community engagement, much can be done to prepare before a spill occurs, such as developing a Crisis Communications Plan for oil and HNS spills, building relationships with media personnel, and developing websites, fact sheets, and social media accounts for response purposes.
- Research shows that 95% of the questions asked by the media can be identified and answers developed before an emergency.
- Use message mapping, based on risk communication principles, to enable effective external communication with the public during emergencies.
- Local leaders and response specialists need to be involved in dialogue with the media. Response specialists can explain what is happening and what response options are feasible for the situation.
- During a response, information from government agencies must be consistent. Inconsistent messages will undermine credibility and trust in the response.
- Avoid speculating about the causes of the incident, the volume spilled (unless stated as a range of potential volume), how bad the incident will become, or how long the response will last. Remind the public and stakeholders that our understanding of the situation will evolve and may change as we learn more about what is actually happening.

OBJECTIVE

The objective of this guidance sheet is to suggest ways to manage media as the primary means to effectively communicate with the public, as well as other external stakeholders. The response organisation needs to implement a comprehensive and well co-ordinated media program of crisis and risk communications to address public questions, concerns, and risk perceptions. The media program should incorporate risk communication principles into messages and leverage the collective knowledge of the response organisation, stakeholders, and stakeholder partners using a media presence.

Effective engagement with the media is necessary to inform the public about the response. Media reports also influence elected officials who monitor coverage of the incident and use it to understand their constituents thinking. Therefore, providing the media with timely and accurate information during a response, even when incomplete, is very important. Uncertainty should be explicitly stated because it will help the public understand the realities of a response and can build credibility. Using statements such as “we don’t know all the answers now” or “we aren’t sure what the situation is, but we will update you when we have new information” acknowledges the uncertainty of the situation.

The response organisation is the logical primary source of information to address public questions. In the absence of timely answers to their questions, the public may turn to less knowledgeable sources or speculate about what is actually happening. This sheet provides guidance on managing the media for oil and HNS spills.

DEFINITION

Media includes the following:

- **TV and radio** – short periods of coverage and deadlines, little time for researching the story line.
- **Print** – daily, weekly or monthly deadlines that have greater time for researching the story line.
- **Electronic** – a mix of instantaneous coverage and coverage with time for researching a story line.
  - Websites
  - Social media
    - Facebook
    - Twitter
    - Blogs
    - YouTube

Electronic Media

- Research shows that the public and key stakeholders prefer going to websites of known agencies, and information sources.
- If they cannot find answers to their questions, they will use whatever sources are available to answer their questions.
- Social media is a tool to quickly connect with and inform stakeholders.
- Twitter is especially effective for notifications and updates, when the set of followers is sufficient.

Dr. Vincent Covello states:

"Be first, be right, and be credible."

Social media is sufficiently important today to warrant additional discussion and is addressed in greater detail in Guidance Sheet 8.

PLANNING ACTIONS (PRE-SPILL)

In preparation for a future response, local authorities could:

- Develop a Crisis Communication Plan to include external communications with the community or region. The plan would detail how to effectively manage external communications and deliver accurate information and co-ordinated messages. Ideally, when possible, this plan should be co-oordinated with the Community Emergency Plan, LRF, and community liaison representatives when they are pre-designated. Identify and meet with

media relations and media personnel to discuss interactions and agreements that should be incorporated into response plans.

- Develop a response website (such as a portion of www.pembsresponse.co.uk) which is black, i.e., is prepared ahead of time but inactive until launched with the click of a mouse when an incident occurs. Co-ordinate with the response organisations to determine if they would develop incident websites, and/ or how local authorities could provide input or manage another website. As part of this black website, also establish a:
    - Facebook page,
    - Twitter account, and
    - Blog website for response coverage.

Review the following for possible ideas on website content:
http://www.maritimenz.govt.nz/Rena/ and
http://www.amsa.gov.au/Marine_Environment_Protection/Montara_Well_Head_Platform/

Also, review the World Health Organisation materials about media relations during emergencies that affect public health.
http://www.who.int/csr/resources/publications/WHO_CDS_2005_31/en/

Prepare Fact Sheets on topics of interest to local stakeholders to preload content for use in media reports. For example: What are Dispersants? These can also provide technically-sound, knowledge-based information to use in developing credible messages.

See Guidance Sheet 4 for further information on developing fact sheets.

- When a spill occurs, identify response, salvage, environmental and oil and HNS spill specialists who can accompany TV and video media, to explain the situation and in an accurate and realistic way. These specialists should receive media training ahead of time, or receive a media briefing (just-in-time training) before they accompany reporters to the spill area or response. Not all technical specialists are good public speakers but those that are should assist the media team.

- Practice message mapping. Message mapping is a methodical way to develop concise, accurate messages. The message mapping process can:
    - Anticipate questions of stakeholders (interested, affected, or influential parties) before they are raised;
    - Decide what questions to answer and who should answer them;
    - Develop responses to stakeholder questions in a clear, concise, and accessible format;
    - Promote dialogue and agreement about messages both inside and outside the organisation;

- Provide spokespersons with a user-friendly set of vetted organisational messages;
- Ensure the organisation has consistent messages; and
- Ensure the organisation speaks with a single voice or with many voices in harmony (Hyer and Covello, 2005).

A message map template is shown in Figure 2.7.1. (Covello, 2007). Use the message map template to develop answers to the 77 questions commonly asked by journalists in a crisis.

Develop answers to the questions most often asked by journalists at the end of this guidance sheet using the 29/7/3 template of Dr. Vincent Covello. The formula often is used by media for headlines and aligns with people's limitations to absorb information when they are stressed. When responding to emotionally charged or stressful questions, limit the response to no more than 3 messages, using no more than 27 words, and delivered within 9 seconds.

RESPONSE ACTIONS (DURING SPILL)

Media management should begin immediately at the onset of an incident. Within 24 hours of a newsworthy incident, reporters from local, national, and international media may arrive at the scene. Consequently, a designated spokesperson must be chosen to provide a media briefing on the initial facts as soon as possible after the start of an emergency.

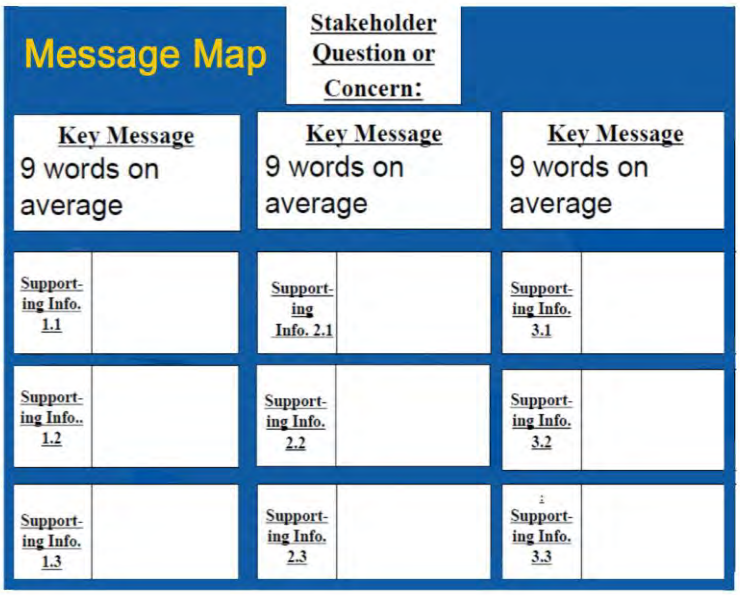

Figure 2.7.1. *Message Map. Source: Covello, 2007*

Depending on the size of the response, a Media Response Team or media team may manage all aspects of media communications. Team press officers will be able to manage media interest by finding answers to questions from the media, developing press releases, and organising media events. They would meet with the lead press officer and exchange contact information with each other as soon as they are on-scene. In this way they can be quickly updated with any new information.

The media team in the response organisation may:

- Ensure that a crisis communication plan is agreed upon by the Strategic Co-ordinating Group, including local authorities, and community liaison representative when designated.
- Launch the black website on Day 1 with information developed pre-spill, e.g., fact sheets.
- Establish media policies and procedures for the incident, e.g., about limitations on sharing

information externally and an internal process to address external questions and concerns.

- Identify the agencies that are responsible for handling various aspects of the situation.
- Make sure that response activities are not interfered with by media personnel. Find the answers most likely to be asked by the media.
- Establish a set time schedule and location for regular press updates.
- Ensure that all entities, police, fire, local authorities, etc. present joint statements and statements that have a co-ordinated message.
- Arrange for the media and VIPs to visit the site.
- Ensure that the injured are not bothered by the media.

During a response, some important things for the organisation to remember about media releases are:

- Avoid speculation about the cause of the incident, how serious the incident could become, or how long the response may last.
- Be clear about what is known and verified, as opposed to still under investigation or being studied.
- Recognise deadlines in the news cycle, e.g., when certain media need information.

Public information from government agencies involved in the response needs to be consistent, especially about the situation status and potential risks. Press releases can be issued after representatives from each involved organisation have had an opportunity to review and approve them. Requests for changes should be made within an agreed time period to ensure the timely release of information. A mechanism or procedure for arranging these reviews quickly and efficiently will need to be established.

Anticipate and prepare various content and information that each form of media will need: detailed or high level, FAQs and Q&As, active on-line discussions, daily, hourly or immediate updates (Facebook, Twitter). Tell the media during press conferences about when they can expect routine updates.

Media briefings can be delivered according to an arranged schedule in the same location. They may also be conducted via webcast or conference call. Potential questions and answers should be anticipated compiled and all needed response specialists should meet shortly before the briefing to discuss the situation at hand. Response specialists should only answer questions in their area of the work. All responding entities, police, fire, local authorities, etc. should present joint statements and statements that have a co-ordinated message.

Strategies for preparing messages and communicating with the public when people in the community are concerned and stressed include (Hyer and Covello, 2005):

- Order messages so that the two most important occupy the first and last positions (note this ordering may change depending upon the audience and the context);
- Cite third parties or sources of information perceived as credible by the receiving audience;
- Develop key messages and supporting information that address important risk perception factors such as trust, benefits, control, voluntariness, dread, fairness, reversibility, catastrophic potential, effects on children, memorability, morality, origin and familiarity;

- Use graphics, visual aids, analogies, quotes and narratives (including personal stories) that can increase an individual's ability to receive, understand and recall a message;
- Balance a negative key message with positive, constructive or solution-oriented key messages, typically using at least three positive, constructive or solution-oriented messages to every negative one; and
- Avoid unnecessary, indefensible or non-productive words, including "*never*", "*always*" or other absolutes.

Media briefings can be delivered according to an arranged schedule in the same location. They may also be conducted via webcast or conference call. Potential questions and answers should be anticipated compiled and all needed response members should meet shortly before the briefing to discuss the situation at hand. Response members should only answer questions in their area of the work. All responding entities, police, fire, local authorities, etc. should present joint statements and statements that have a co-ordinated message.

Media & Lessons Learned from the *M/V Rena* Response

The container ship, *M/V Rena*, ran aground on a reef in New Zealand around 2:30 am on October 5, 2011. By 5 pm, the Incident Control Centre was established, the incident was declared a Tier 3 incident (worst case), and the media team had arrived. The situation worsened: fuel oil was discharged and severe weather caused the stranded ship to break apart. The active response lasted for months, and the incident website is still active in 2013.

The following summarises the key items addressed and lessons learned from this response:

- This incident required extensive and continuous local community engagement;
- There was extensive use of volunteers;
- A Community Relations / Media Team was established :
- Social media played a significant role in addressing the information needs of the public and affected stakeholders;
- The response organisation needed to establish a routine community engagement update process:
    - Send press release to the media.
    - Send press release to the stakeholder email list.
    - Update incident website .
    - Update Facebook and Twtter, post links to the response website.
- Messages must be consistent across all mediums.
- Visuals are very important.

When a marine spill response begins, the Marine Coastguard Authority (MCA) may establish the organisation for a co-ordinated media response. Assure that adequate personnel needed to address media needs are in place. Some actions which MCA may implement include:

- Provide a Dedicated Press Officer who can advise the Secretary of State' Representative for Salvage and Intervention (SOSREP) and MCA response team on media relations, arranges press conferences, and issues regular news bulletins.
- The Dedicated Press Officer may liaise with the press office of other government departments as appropriate;
- Establish a Media Strategy Group comprised of the ship owner and/or Offshore Operator or responsible party, Department of Transport (DfT)/MCA, Department of Energy and Climate Change (DECC), devolved administration (if applicable), and local authority;
- Ensure that an adequate Media Response Team is put in place;
- Ensure the Media Response Team reports to a Dedicated Press Officer provided by the MCA; and
- Ensure that the team liaises, on behalf of MCA and the SOSREP, with media teams from external stakeholders and the press.

When an emergency is activated under the Civil Contingencies Act of 2004 (CCA), the Communications Group has the responsibility of managing media interest in the community itself during the response, as the issues are generally not related to the response activities. In a CCA response Local Community Resilience Forums also may have plans for working with the media. The Communications Group will also have the full responsibility for media management after the response ends and the response organisation leaves.

ADDITIONAL INFORMATION

Reynolds, B. et al. 2012. **Crisis and Emergency Risk Communication**. Centers for Disease Control and Prevention, Washington DC. http://emergency.cdc.gov/cerc/pdf/CERC_2012edition.pdf.

Hyer, R. and Covello, V.T. 2005. **Effective Media Communication During Public Health Emergencies: A World Health Organisation Handbook**. Geneva, Switzerland: United Nations.

Risk and Crisis Communication: 77 Questions Commonly Asked by Journalists During a Crisis

(Reprinted from: Covello, V.T., 2003. Keeping Your Head In A Crisis: Responding To Communication Challenges Posed By Bioterrorism AndEmergingInfectiousDiseases. Association of State and Territorial Health Officers [ASTHO])

Journalists are likely to ask six questions in a crisis (who, what, where, when, why, how) that relate to three broad topics: (1) What happened; (2) What caused it to happen; (3) What does it mean.

Specific questions include:

1. What is your name and title?
2. What are you job responsibilities?
3. What are your qualifications?
4. Can you tell us what happened?
5. When did it happen?
6. Where did it happen?
7. Who was harmed?
8. How many people were harmed?
9. Are those that were harmed getting help?
10. How certain are you about this information?
11. How are those who were harmed getting help?
12. Is the situation under control?
13. How certain are you that the situation is under control?
14. Is there any immediate danger?
15. What is being done in response to what happened?
16. Who is in charge?
17. What can we expect next?
18. What are you advising people to do?
19. How long will it be before the situation returns to normal?
20. What help has been requested or offered from others?
21. What responses have you received?
22. Can you be specific about the types of harm that occurred?
23. What are the names of those that were harmed?
24. Can we talk to them?
25. How much damage occurred?
26. What other damage may have occurred?
27. How certain are you about damages?
28. How much damage do you expect?
29. What are you doing now?
30. Who else is involved in the response?
31. Why did this happen?
32. What was the cause?
33. Did you have any forewarning that this might happen?
34. Why wasn't this prevented from happening?
35. What else can go wrong?
36. If you are not sure of the cause, what is your best guess?
37. Who caused this to happen?

38. Who is to blame?
39. Could this have been avoided?
40. Do you think those involved handled the situation well enough?
41. When did your response to this begin?
42. When were you notified that something had happened?
43. Who is conducting the investigation?
44. What are you going to do after the investigation?
45. What have you found out so far?
46. Why was more not done to prevent this from happening?
47. What is your personal opinion?
48. What are you telling your own family?
49. Are all those involved in agreement?
50. Are people over reacting?
51. Which laws are applicable?
52. Has anyone broken the law?
53. How certain are you about whether laws have been broken?
54. Has anyone made mistakes?
55. How certain are you that mistakes have not been made?
56. Have you told us everything you know?
57. What are you not telling us?
58. What effects will this have on the people involved?
59. What precautionary measures were taken?
60. Do you accept responsibility for what happened?
61. Has this ever happened before?
62. Can this happen elsewhere?
63. What is the worst case scenario?
64. What lessons were learned?
65. Were those lessons implemented?
66. What can be done to prevent this from happening again?
67. What would you like to say to those that have been harmed and to their families?
68. Is there any continuing the danger?
69. Are people out of danger? Are people safe?
70. Will there be inconvenience to employees or to the public?
71. How much will all this cost?
72. Are you able and willing to pay the costs?
73. Who else will pay the costs?
74. When will we find out more?
75. What steps need to be taken to avoid a similar event?
76. Have these steps already been taken? If not, why not?
77. What does this all mean?

Media Management
Tips from the Responder Survey

- Provide positive images and videos along with the negative as soon as possible. Examples include: workers responding, birds being cleaned, areas being protected. Over 90% of information transmitted to the brain is visual (3M Corporation). A picture really is worth a thousand words.
- Photographs and/or video of the incident should always be provided with accurate explanations of what they show and what it means for the response. Always provide the information with appropriate caveats, e.g., "*we are still assessing, what we know now is*...". People can understand technical information and accept uncertainty if messages are developed using risk communication principles and delivered when the questions and concerns arise.
- A helicopter flyover can be an effective approach to give the media a realistic view of the incident size and spread. Especially at first, and whenever possible, send a technical specialist to accompany a pool of reporters to explain what they are seeing and promote a shared technical understanding. A report on conducting aerial observations is available on the www.itopf.com publications page.
- Avoid numbers about spilled and recovered oil, unless they are caveated, e.g., "*as of today we believe that*…", or "*technical experts suggest that* …, "
- Establish good working relationships with key stakeholders, trusted sources of information, and opinion leaders to help them share the actual information from the response with others.
- Address misperceptions, incorrect information, and rumors immediately.
- Maintain a positive attitude about the response during interactions with the press.
- Talk in understandable language. Avoid jargon.
- Don't be defensive during interactions with the press.

Guidance Sheet 8 - Social Media

Summary Points

- Social media is an important tool for sharing real-time emergency information during a crisis.
- Social media has three specific purposes during an emergency response: publishing content; sharing information with those outside of the response; and networking by connecting people with shared interests.
- An important aim of social media use is to become the first place that your audience turns to for credible, up-to date-information that serves to inform, educate, and update users. Therefore, information should be updated frequently to keep the audience returning to your social media source. Out-of-date information which fails to address risk perceptions may drive users to other information sites to address their concerns and questions.
- A social media strategy needs to be clearly pre-defined along with policies regarding social media use.
- Accounts for Facebook, Twitter, YouTube, and a blog site could be established pre-spill.
- Co-ordination with the MCA, as well as the Harbour Authority on social media strategy is important.
- A plan needs to be developed for implementing the social media strategy during a response.
- Effective social media strategies will need to define:
    - Objectives,
    - Key users and stakeholders,
    - Resource requirements,
    - Audience information needs and technology uses, and
    - Methods to leverage established relations.
- During an incident, a response organisation representative can use social media to:
    - “Listen to” perceptions, concerns, and questions and monitor issues of interest and concern which may be discussed further in tradtitional social media,
    - Engage with local leaders and trusted sources of information,
    - Share information with stakeholders, and
    - Encourage private individuals to provide information about locations of shoreline oiling, location of oiled wildlife, and other information from the field.

OBJECTIVE

The objective of this guidance sheet is to discuss how social media can be used as an external communications tool to support effective engagement with the community for oil and HNS spills.

Social media provides a significant opportunity to be a source of real-time emergency information for the community as it is often an important component of people’s daily information consumption. Some response managers may view social media as not essential and may avoid using it because they are not in full control of all content. However, it cannot be ignored as not only the public looks to social media for information about a response, but so does traditional media. These technologies support three

specific purposes: publishing content; sharing information with those outside of the response; and networking by connecting people with shared interests. When effectively used, social media provides additional opportunities for emergency personnel to communicate with the public and with each other. The goal of using social media in spill response is to become the trusted source of information for your target audience – to be the first place that your audience turns to for credible, up to date information. Response managers can use social media platforms strategically to inform, educate, and update their target audience.

Response managers in recent world events like the *M/V Rena* oil spill in New Zealand (2011-12) have used social media to: further involve affected communities through efforts to obtain direct feedback and to post schedules; direct interested parties to sources for accurate information; communicate with the media; give political figures face time; dispel myths; express thanks to volunteers; as well as in other ways to meet specific incident requirements.

Research also shows that the desire to help during sudden and tragic events is newly enabled by resources like Twitter, where assistance can be provided remotely. As discussed in Section 5, information creation and movement as the basis for social connection and subsequent collective action is an emerging function for social media and opportunity for community engagement (Starbird and Palen, 2011). Research suggests that the digital volunteer will become a common and likely influential feature of future social life.

DEFINITION

Social media encompasses a variety of web and mobile-based technologies to communicate and enable interactive dialogue among organisations, communities, and individuals. Social media facilitates interactions between users to create and exchange concepts, insights, opinions, and data.

The technologies encompass many different forms including social networks such as Twitter and Facebook, YouTube, Internet forums, as well as Blogs. A Blog is a discussion or informational site published on the web which consists of discrete entries (posts) typically displayed in reverse chronological order (the most recent post appears first). Until 2009, Blogs were usually the work of a single individual, occasionally of a small group, and often were themed on a single subject. More recently, "multi-author blogs" (MABs) have been initiated with their posts authored by a large numbers of individuals that undergo professional editing.

Mobile Social Media

Social media applications used on mobile devices like smartphones are called *Mobile Social Media*. In comparison to traditional social media running on computers, mobile social media software can display information for a more location- and time-sensitive audience through either mobile web applications or "apps" (standalone applications that run online or offline).

Social Media can provide:

- **One-Way Outreach:** This means using social media to post web-versions of information without an attempt to receive feedback from the public.
- **Two-Way Engagement:** This means both sharing information *and* being responsive to those who wish to engage with the post. Crowd Sourcing is a social media technique of rallying people around a cause or concept and enabling them to contribute their thoughts,

observations, and insights into a particular topic. Facebook, Twitter, and Blogs can all serve as interactive forums for two-way engagement with the public.

Multiple social media platforms described below can be used strategically during a response to share information, encourage dialogue and solicit feedback.

Twitter: Microblogging site that allows messaging of 140 characters or less per entry (known as tweets). Can serve as a newswire for breaking news, time-sensitive information or minute-by-minute updates with photos. Fosters a "*follow*" strategy, e.g., allows registered and unregistered users to read tweets, track individual tweet topics, request data from followers, re-direct to websites for detailed content, etc. over a wide range of social media platforms.

Facebook: Widely used social networking site. Using it can expand the reach of external communications and build support via "*likes*" by users. Facebook allows for scheduled daily updates with photos, including updates posted after hours and on weekends.

YouTube and **Vimeo**: Videos can help humanise complex topics, provide information or explain topics, e.g., safety actions the public should take, show engagement activities of the on-going response, e.g., volunteer activities. Vimeo has no limits on length. Tagged videos receive preferred status in Google search engines. These sites offer extensive analytics and reporting features to learn about viewership.

In 2012 in the UK:

- The population was 62 million.
- There were over 32 million Facebook users. That's over 50% the population!
- 60% of online users belonged to Facebook.
- Over 35 million viewers used YouTube each month.
- Twitter had over 10 million active users.

Blogs: Allow responders to post detailed Media Releases, commentary, and longer messages, similar to newspaper articles that can be tracked by the target audience. Most Blogs are interactive, allowing visitors to leave comments and even message other readers, thus building social relations with the readers and other bloggers. A typical Blog combines text, images and links to other blogs, web pages, and other media related to the topic.

RSS feeds: RSS is short for "*really simple syndication*". RSS feeds allow you to see when websites, Blogs, or other news headlines have added new content, without having to visit the website where the feeds are contained. Typical feed content includes news headlines, announcements or new content. A response can use RSS feeds to share news, media releases, consultation, and public feedback information, as well as to receive automated email notifications of new updates. Certain web browsers, including Firefox and Safari, automatically check RSS feeds for you when you visit a website, and display the RSS icon near the web address when they find one.

Although not considered social media a response website should be established to share comprehensive information about a specific incident externally. Social media can also be integrated into that website through links to Twitter, Facebook and blogs.

Please also refer to Guidance Sheet 7 on Media Management.

PLANNING ACTIONS (PRE-SPILL)

In preparing for a future spill or other emergency situations, local authority representatives, especially those who fulfill the role of a community liaison representative during an incident that involves shoreline impacts, need to:

- Clearly pre-define their social media strategy and develop policies around their use.
- Establish and/or share pre-established accounts for Facebook, Twitter, video sharing platforms, and any appropriate mobile websites that operate on smartphones.
- Co-ordinate with the Marine Coastguard Agency (MCA) and Harbour Authority about the social media strategy for response.
- Develop a plan to implement the social media strategy during a response that identifies the social media strategy by Tiers of response (some or all of Tier 1, 2, or 3 incidents). The Plan should:
    - Identify triggers for activation
    - Be a stand-alone plan or incorporated into the overall media plan to address all external communications.
    - Establish a management structure to assign functional responsibility for various aspects of the social media program

Personnel can be assigned and pre-trained to function as:

- Website and/or social media managers
- Photographers and videographers
- Video editors for YouTube and other internet video releases
- Media monitors to keep abreast of what is being said in the press and in social media so issues of interest can be addressed

RESPONSE ACTIONS (DURING SPILL)

- For incidents involving both extended at-sea response and shoreline impacts, consider using a well co-ordinated dual media effort that addresses the social media requirements for:
    - The overall and at-sea response – information would be managed by a national-level media team manager; and
    - The on shore clean-up and impacts – information would be managed by the media team manager from the appropriate local authority
- Assign responsibility for implementing social media activities.
- The Media and Public Affairs Team, Designated Press Officer or other response organisation official assuming those responsibilities need to oversee and co-ordinate with those in charge of social media input, and establish a protocol for approving external information sharing and messages.

- Identify and contact appropriate technical specialists in the response organisation for information to provide the content needed to address technical questions and concerns regarding spill hazards and risks from the media and the public.
- These responders may include those involved in operations and safety, Enviornmental Group (EG), Shoreline Response Centre (SRC), as well as the community liaison representatives.
- Be Integrative: Share information directly especially with trusted individuals or organisations in the community, as well as other stakeholders, and non-governmental organisations that can assist with distributing information and gathering feedback.
- When properly trained web authoring, videographer, or editing personnel are not available, community members with experience in the field may be consulted or contracted to work on the project.

An example response organisation built to address the needs of engagement and social media, based on the *M/V Rena* oil spill, is shown in Figure 2.8.1. Interactions among all levels is key to an effective strategy.

Figure 2.8.1. *Example organisation based on the* M/V Rena *(2011-2012) for Community Relations and Media Management, highlighting Social Media function. NOTE: Not all components of the organisation are shown in this diagram.*

Social Media Lessons Learned from the *M/V Rena* Response

The container ship, *M/V Rena*, ran aground on a reef in New Zealand around 2:30 am on October 5, 2011. By 5 pm, the Incident Control Centre was established, the incident was declared a Tier 3 incident (worst case), and the media team had arrived. The situation worsened: fuel oil was discharged and severe weather caused the stranded ship to break apart. The active response lasted for months, and the incident website is still active in the fall of 2012.

For more information about the *M/VRena* lessons learned, review information at:

- http://www.maritimenz.govt.nz/Rena/default.asp
- http://www.maritimenz.govt.nz/Rena/public.asp#community
- Rena RSS feeds http://www.maritimenz.govt.nz/RSS-feeds.asp

Social Media
Tips from the Responder Survey

- A good way to collect concerns on areas not yet addressed by the stakeholder groups or response agencies.
- Always address difficult or angry comments and reply to misguided posts / tweets. Don't let damaging misconceptions go unchallenged.
- Get people involved in the response, asking for tweets / posts on any pollution problems spotted or distressed seabirds.
- Use to establish a database of volunteers with relevant and transferable skills that may be useful in an incident (i.e., IT, medical skills, catering experience).
- Helps to give the public ownership and feel involved, rather than a critical outsider.
- It's not just about providing information; the community will not only ask questions, but also show support, say thanks to responders, interact, and vent their frustrations.
- Get the proper equipment now. This includes video cameras, tripods, editing software, etc.
- Crisis Communication is a process, not something with an on/off switch. Even after an incident or event, good communication requires constant monitoring and effort by an organisation. Don't stop social media the day the responders finish on site clean-up. Questions and misinformation will remain and need to be addressed for a time after active response has been completed.
- After on-scene operations end, evaluate the success or failure of the social media efforts for improvement next time.

ADDITIONAL INFORMATION

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Guidance Sheet 9 - Organising Volunteers

Summary Points

- Studies show that when volunteers participate in or are able to constructively contribute to emergency response, community resilience is increased and the community recovers more quickly from that situation.
- Ideally local authorities will consider pre-spill, if and when volunteers will be used in responses to oil and HNS spills. When a decision is made to use volunteers, a Volunteer Management Plan (VMP) should be prepared.
- A VMP should define volunteer functions, discuss how to identify and train volunteers, ideally pre-spill, and address how they may be integrated into a response. A VMP which is developed during preparedness should be exercised during oil and HNS spill exercises and drills.
- When volunteers are used, a practical and safe way for these non-professional responders to perform useful functions during a response should be considered, e.g., debris clean-up on beaches prior to oil impact.
- Volunteers can be either affiliated or unaffiliated volunteers. It is generally preferable to use affiliated volunteers from recognised and established volunteer groups. Unaffiliated volunteers may be difficult to appropriately incorporate into response and recovery efforts.
- During a response, the community liaison representative can be used to co-ordinate and manage volunteers.
- Pre-spill planning for the demobilisation of volunteers also needs to be addressed in a VMP.

OBJECTIVE

The objective of this guidance sheet is to discuss ways to use volunteers appropriately and as an engagement activity which can enhance community resilience and recovery, especially when a spill is considered a technological disaster. Volunteers may also provide supplemental resources and local knowledge to supplement the response organisation when needed for responding to an incident.

Organising volunteers requires finding a practical and safe way for non-professional responders to perform useful functions during a response. When a significant spill occurs, members of the community want to help the area return to its fully functioning status as quickly as possible. This is particularly true when the incident results in socio-economic impacts on a community. Providing a way for volunteers to support the response effort is a component of community resilience and recovery. Studies show that participating in the response enhances resilience and decreases the time needed for recovery. Volunteers can be a valuable asset during a major spill response when the process for managing them and identifying suitable activities for them to carry out is well planned, preferably in advance of a response. A VMP is a tool for the response organisation to integrate volunteers into the overall response.

Research also shows that when sudden and tragic events have occured, the desire to help has been expressed in social media resources like Twitter. Information creation and dissemination as the basis for social connection and subsequent collective action is an emerging function for social media and an opportunity for community engagement (Starbird and Palen, 2011). The research in Section 5 suggests that the digital volunteer will be a common and likely influential feature of social media going forward.

DEFINITIONS

A volunteer is an individual who is willing to contribute his/her time or services in order to achieve an objective, often beyond his/her everyday responsibilities and employment without receiving compensation. Volunteer Management is the ability to co-ordinate the identification, recruitment, registration, credential verification, training, and engagement of volunteers to support the response to an oil or HNS spill incident. Volunteer management also ensures that there is community buy-in of an organisation's mission, thereby strengthening their credibility in the eyes of the public/community. Volunteers usually fall into two categories:

Figure 2.9.1. *Volunteers are issued protective clothing at Mt Maunganui beach. Courtesy of Maritime New Zealand*

- **Affiliated volunteers:** Individuals associated with a government agency, NGO, or volunteer organisation prior to an incident. They may have already received sufficient training in some response areas (example: bird cleaning).
- **Unaffiliated, convergent, or spontaneous volunteers:** Individuals, who spontaneously appear and would like to participate in the response effort, but usually have little or no response training. However, some may have professional training in fields other than emergency response.

Please also refer to ITOPF's paper on Volunteers and Oil Spills **http://www.itopf.com/information-services/publications/papers/documents/IOSC11.pdf**.

PLANNING ACTION (PRE-SPILL)

Local authorities may consider during preparedness if and when using volunteers would be appropriate for potential spill scenarios (See Guidance Sheet 1). The County Council can co-ordinate with the Emergency Planning Group to identify the potential activities and types and numbers of volunteers most likely to be needed in a response to likely spill events, and review the applicability of existing volunteer programmes.

The use of volunteers from recognised and established volunteer groups is always preferable. Due to their lack of response training and familiarity, using unaffiliated volunteers may hinder response and recovery efforts. There are many challenges and considerations that need to be identified, evaluated, and addressed before deciding when to use volunteers during response. For example:

- Training and supervision of volunteers requires management attention and time.
- Volunteers may compete with paid staff such as clean-up contractors.
- Volunteers may lower professional standards.
- There may be potential liability issues.

Components of a Volunteer Management Plan

The *M/V Rena* report noted a core group of requirements that should be addressed in any VMP. This list identifies some of the key components of a VMP:

1. **Purpose of the VMP** – procedures for the organisation and management of community volunteers (affiliated and spontaneous) that want to assist in the response.

2. **Objectives of the VMP** – must contain clear, concise, and explicit directions for the use of volunteers as a component of the response.

3. Identification of key stakeholders to the VMP.

4. **Volunteer organisational structure** - identify all supervisory staff, co-ordination, and management positions for the use of volunteers. This includes defining roles and responsibilities for all positions.

5. **Volunteer co-ordination** – notification and communications, health and safety requirements, supervision and supervision ratios, etc.

6. **Summarise the volunteer preparedness requirements** – provide a list of volunteer requirements prior to their acceptance in the response operations: pre-registration, minimum time commitments, training requirements, personal supplies, etc.

7. **Training requirements** – develop required training programs, facilities to conduct training, and staff to support the training of volunteers.

8. **Volunteer Health and Safety Plan** – developed for all volunteers and addressing the personal and site safety requirements for each work area and task. This information should be relayed to all volunteers during the mandatory daily safety briefings.

9. **Operational requirements** – transportation plans, mandatory safety briefings, supervision ratios, site security requirements, communications planning for volunteers, emergency procedures, PPE requirements, operational clean up procedures and restrictions, disposal procedures for contaminated materials, etc.

10. **Decontamination** – procedures to process volunteers through decon, removal and disposal of PPE

11. **Plan review, update, and feedback** – no plan is static and therefore, a VMP needs to be modified to address the changing conditions of the response.

12. **Volunteer demobilisation** – plan for volunteer attrition, de-activation, or response completion. Conduct exit interview and retrieve any data / equipment assigned.

When a local area decides to use volunteers for responding to oil and HNS spills, it is advisable to develop a VMP pre-spill. Community volunteers should be encouraged to affiliate with an organisation in advance, instead of waiting for an emergency to occur, perhaps by working with a Local Resilience Forum and becoming part of a Community Emergency Group.

The text box on the previous page presents VMP components which are recommendations following the volunteer programme during the *M/V Rena* response.

Before a spill event occurs, local, regional or national jurisdictions should work with county emergency managers to develop, implement, and periodically exercise a VMP. This plan should include policies along with detailed methods, and instruction for those who will be managing volunteers.

Volunteer Safety

Safety is a critical issue when deciding how best to utilise volunteers. Unless specifically requested by Emergency Planning Unit or response organisation, volunteers should generally not be used for physical removal of spilled materials or remedial activities.

This approach will ensure that the potentially hazardous operations are carried out by skilled and trained personnel.

Response Actions (During Spill)

When an incident occurs that warrants the use of volunteers, a previously developed VMP should be activated, or a new VMP should be developed. The media should be contacted to help inform the public of agencies and organisations that they can contact to help with the emergency response effort. Important aspects of effectively integrating volunteers into a response include:

- **Planning:** Ensuring that a framework is in place for volunteers to be used effectively.
- **Registration Process:** Identifying, assembling and registering volunteers.
- **Skills assessment:** Determining suitable work areas for each individual.
- **Preparation:** Ensuring that volunteers are properly briefed and kept informed of their role.
- **On-site management:** Designating volunteer supervisors, who will provide appropriate training and management.

The effectiveness of many responses often depends as much upon people management as the availability of equipment and other physical assets and resources. The following are recommendations summarised from the report describing the *M/V Rena* Volunteer Programme. These recommendations are specific to the use of volunteers during an oil or HNS incident.

- Maintain continuity of personnel.
- Incorporate local assets first.
- Incorporate volunteer management professionals into the response organisation.
- Utilise skilled volunteers in advisory roles.
- Establish an oil spill response volunteer database.
- Gather field observations and feedback.
- Build stakeholder relationships.

- Build flexibility in planning efforts.

As the need for volunteers winds down, the community liaison representatives in the response organisation should begin to work with the county emergency managers to de-activate volunteers. At that time, it is appropriate for the entity responsible for managing volunteers to:

- Thank the volunteers with an email or social media message, or certificate of appreciation for their assistance.
- Ensure reimbursement of support expenses for the volunteer programme if they are involved in activities which are covered by the compensation regime that applies to the specific incident.
- Develop a protocol for conducting exit screening during out-processing; include documentation of any injuries and illnesses acquired during the response, including mental/behavioural health needs occurring while participating in the response.
- Track (record or document) the demobilisation of volunteers: assure co-ordination of out-processing of volunteers including return of response equipment.
- Determine whether additional volunteer assistance is anticipated from the volunteer.
- Confirm the volunteer's follow-up contact information.
- Co-ordinate with other groups as necessary to identify community resources that can support volunteer post-deployment support if necessary, such as medical screening, stress, and well-being assessment and, when requested or indicated, referral to medical and mental/behavioural health services.

Cost of Volunteers

Even if volunteers are unpaid, that does not mean that there are no costs associated with their use. Some expenses may involve:

- Paid professionals needed to train and supervise.
- Space and equipment.
- Food, transportation, and housing.
- Safety equipment

NOTE: The polluter would provide reimbursement for volunteer costs approved by the response organisation, possibly through insurance and claims.

Use of Volunteers During the *M/V Rena* Response

The *M/V Rena* ran aground on a reef in New Zealand on October 5, 2011. By 10 October, officials were working out how best to respond to the public pressure to help with the clean-up. The New Zealand National Oil Spill Response Strategy outlined the processes, structures and roles for undertaking the clean-up and did not include a volunteer programme. By October 12th, the Bay of Plenty Regional Council began to gear up the volunteer programme. One of the challenges facing the Volunteer Team was to organise credible, safe, relevant and positive clean-up operations for community members. The Bay of Plenty Regional Council was responsible for overseeing the volunteer programme through these task areas:

- Supporting and facilitating community volunteers.
- Supporting elected representatives in co-ordinating offers of assistance.
- Supporting the National On-Scene Commander in operational shoreline clean-up tasking.
- Complementing the existing contractor shoreline clean-up teams.

In the first two weeks they demonstrated to the various sections of the Incident Command Centre that volunteers could play a safe, useful, and legitimate role in the beach clean-ups alongside NZDF and contractors by developing:

- A robust Volunteer Team structure and processes.
- A highly credible Shoreline Clean-up Volunteer Management Plan.

The total numbers associated with the volunteer programme were:

- 8,000 registered volunteers
- 40 corporate/group offers of labour
- 57 voluntary caterers
- Vehicles and gear loaned or donated
- 150 clean-up events
- 24,000 hours of volunteer effort
- $350,000 worth of personal protective equipment
- Collected part of 1,050 tonnes oily waste

The volunteer programme helped to shift public opinion and attitude by meeting community demands for inclusion in the response and tangentially by improving communications through listening to community views and volunteer feedback. By the end of the public volunteer effort, the participants were recognised as an essential part of the response and applauded for the positive effect they had on the response.

Mayor Stuart Crosby and Glenys Taikato enjoying the Volunteers Day, 11 March 2012

Maritime New Zealand arranged with the Bay of Plenty Regional Council to manage volunteers. Their report can be read at http://www.boprc.govt.nz/sustainable-communities/rena-oil-spill-volunteer-hub/

Guidance Sheet 10 – Managing Social and Economic Impacts

Summary Points

- A spill event can result in adverse impacts on tourism and hospitality industries, fishermen, as well as, on adjacent industrial users of coastal waterways, e.g., such as utilities that have water intakes for cooling.
- The most common social and economic impacts from oil spills are on the tourism and the fishing industry.
- It is advisable to be pro-active and focus efforts during and after a spill to mitigate the negative social and economic effects.
- Co-ordination between external stakeholders and the response organisation takes deliberate and often substantial effort. The resources needed to mitigate socioeconomic impacts and recovery could exceed response costs if a spill impacts the prime tourism and fishing season and if those industries represent a major part of the local economy.
- Public and stakeholder communications to manage risk perceptions and restore public confidence in the cleanliness and safety of tourist areas and seafood may be needed immediately.
- Tap into and leverage working relationships developed before an incident with stakeholders, local industry, and the local media.
- Local and regional leaders along with stakeholders can work together to provide updates to the public about the condition in areas of interest to tourists.
- Promotion through marketing may be required to sustain and restore businesses dependent upon the coastal environment, e.g., tourism and seafood industry.
- Pollution insurance typically covers direct and indirect spill damages in addition to response costs. Costs not covered by insurance may be paid by government or by the polluter when they are self-insured.
- If a community believes a spill has resulted in a technological disaster, corrosive sociological effects may occur and can be addressed with the help of community health workers and other appropriate community services.

Objective

The objective of this guidance sheet is to suggest ways to mitigate social and economic impacts on affected communities based on spill experience, international compensation conventions, and research. This guidance sheet highlights the interconnectivity between this and other topics and discusses ways to help businesses impacted by oil and HNS spills recover more quickly. The emphasis here is on economic impacts at the local level. Recognising that other human dimensions impacts on the community also may occur, Section 5 of this guide discusses the work of social scientists in relation to social impacts of technological disasters, e.g., Tier 3 spills like the Deepwater Horizon oil spill, on communities.

This guidance sheet also highlights information to facilitate the timely assessment and payment of claims related to the socio-economic impacts of oil and HNS spills. This sheet also discusses ways to enhance community recovery by effectively making use of community liaisons, community resilience planning, risk communications, and stakeholder engagement to address and mitigate perceived risks and impacts associated with an incident.

DEFINITION

As used here, socio-economic impact refers to any change to a socio-economic environment, positive or negative, that wholly or partially results from an activity, such as an oil/HNS spill, or process, such as the spill response (ISO, 1996). This topic recognises that economic activity affects social processes in the community.

Learn about ways to enhance community resilience in Section 5 and Guidance Sheet 1. Using community volunteers can also help with social impacts as discussed in Guidance Sheet 9.

When a spill occurs, the event may impact businesses which operate adjacent to coastal waters in industrial or tourist areas. Industrial users which may be impacted are those that draw in and use water, e.g., for cooling. Businesses which are dependent upon shoreline areas and marine resources also could be impacted by an oil or HNS spill and may include coastal hotels and restaurants, commercial and personal use fishing (recreational and subsistence use), and aquaculture, to name a few. Sociologists have found that communities which are dependent upon renewable resources, e.g., fishing villages, may be especially vulnerable to the socio-economic impacts caused by an oil spill. Such communities may experience corrosive effects if spill related impacts and stresses are not mitigated. Building community resilience can help alleviate social impacts following natural and technological (human-caused) disasters (Picou, 2009).

Important concepts to understand are how spilled pollutants spread away from the source in a patchy manner, and exposure pathways mentioned in Section 3 under Spill Impacts.

Small businesses and individuals working in the hospitality and tourism industry are more vulnerable to spill impacts on their livelihood than large businesses. The Small Business Administration in the US recognises that if small businesses shut down for longer than a few weeks, 40-60 percent will be unable to recover, which has been documented following large, extreme weather events.

Local authorities should recognise that mitigating socio-economic impacts from a serious spill may require a combination of support during preparedness and response. To help businesses prepare for any interruption, business continuity planning is beneficial. Business Continuity Management is a holistic management process that identifies potential business impacts that threaten an organisation and provides a framework for building resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value creating activities.

County Council has published advice and a simple business continuity plan template for small and medium sized businesses:
http://www.cardiff.gov.uk/content.asp?nav=2870,3141,5271&parent_directory_id=2865

Stakeholders and local authorities can take steps before, during and after a spill to mitigate the socio-economic effects from spills. Local authorities may discuss with communities various ways to manage pro-actively risk perceptions of the public about seafood safety and oiling in tourist areas, and potential impacts. Strategies may include use of media and social media to quickly disseminate accurate, up to date information about the safety of specific tourist areas and seafood. The response organisation should provide information about the extent of oiling, potential exposure of fisheries and the public to spilled pollutants, and the progress of clean-up to help counter public perceptions, which may be unwarranted.

Learn about how insurance compensates for oil and HNS spill damages in:
IOPC Claims Manual
http://www.iopcfunds.org/uploads/tx_iopcpublications/2008_claims_manual_e.pdf

ITOPF Technical Report "Effects of Oil Pollution on Social and Economic Activities"
http://www.itopf.com/information-services/publications/documents/TIP12EffectsofOilPollutiononSocialandEconomicActivities.pdf

The coastal tourism industry is multi-faceted. It includes the business of providing tourists with accommodations, transportation, restaurants, recreational fishing charters, diversions and unique experiences, information and vacation planning assistance and other related services. The fishing industry depends upon business consumers, like hotels and restaurants. Seafood is sold by fishermen to wholesalers, to retailers, or directly to consumers. The tourist industry is interdependent - local attractions need tourists, tourists need hotels, restaurants need hotel guests and depend on the commercial fishing industry to supply food. The impacts on one part of the industry can be felt on another part.

Figure 2.10.1. Trickle down economies - potential effects of an oiled beach. Graphic by D. Scholz, SEA Consulting Group.

Ecnomic damages resulting from an oil or HNS spill may be both direct and indirect. A spill could cause economic losses for the fishing industry by contaminating fishing and aquaculture areas and fisheries (direct impact). The industry may experience economic losses by the reduced demand for seafood

due to reduced tourism and the stigma of tainted seafood (indirect impact). Even when the boats are fishing again, reduced demand may remain a problem.

Consumers' and travelers' risk perceptions can exacerbate and prolong socio-economic impacts which in turn becomes a barrier to economic recovery. Impacts on many businesses simultaneously can have a community-wide impact. The perception that beaches may be unsafe due to small amounts of residual oil, or that all seafood from the area in the vicinity of an oil spill may be contaminated, may cause tourists to vacation elsewhere and chefs to buy from suppliers in other areas. Figure 2.10.1 illustrates the interrelationship of these businesses and how actual or perceived impacts can negatively affect multiple businesses.

Public perception about spill risks and actual spill conditions can be quite different. To mitigate socio-economic effects from a spill, is important to actively manage public perceptions. Marketing campaigns using both traditional and social media, specifically target public perceptions to reassure the public that businesses are open and the environment is safe.

Technical studies may be needed to gather data and confront perceptions in a credible way. During the Deepwater Horizon oil spill, scientific work was performed by an Operational Science Advisory Team (OSAT) to address risk perceptions of the public about residual oil on tourist beaches and that oil and dispersants had contaminated seafood.

Planning Actions (Pre-spill)

This topic is highly interconnected to all of the other topics addressed in this guide. Preparedness actions for this topic fall into three areas:

1. Recognise that socio-economic impacts are influenced by risk perceptions and plan to pro-actively manage these perceptions through effective risk communication and strategic use of traditional and social media.

Deepwater Horizon studies to address public perceptions about tourist beaches and seafood:

- The OSAT-2 report provides a Net Environmental Benefit Analysis comparing environmental and human health risks of this remnant oil compared to the environmental risks of pursuing further, more aggressive, clean-up efforts. http://www.restorethegulf.gov/release/2011/03/01/osat-2-fate-and-effects-oil-beaches
- The US Food and Drug Administration and the National Marine Fisheries Service manage seafood testing and safety in US federal waters; states were responsible for seafood testing in state waters.

The testing procedures used are described at: http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/ucm233720.htm

2. Use stakeholder engagement to develop relationships with key stakeholders in business and industry during preparedness which will facilitate quick and effective action should an oil or HNS spill occur that results in socio-economic impacts

Learn about the process to engage with local authorities and other stakeholders in the community in Section 1 and in Guidance Sheets 1 and 2 of this guide.

3. Encourage businesses to maintain good records and documentation. This cannot be overstated. Having proper documentation and accurate financial data will speed the processing of claims which will help sustain cash flow should an oil or HNS spill prevent a business from operating and/or reduces the its revenue.

More information about international oil and HNS compensation is contained in Section 1.

It is possible to conduct a credible post-spill economic damage assessment without pre-spill baseline information, but this is not an ideal situation. Without a baseline, it is difficult to quantify and interpret both impact and recovery needs. The availability of pre-spill baseline information makes the post-spill economic damage assessment task much easier, accurate and more defensible. Essentially, the better the financial documentation before a pollution event, the easier it will be to assess pre and post-spill changes and estimate damages. Historical records are critical elements in the claims process. The objective is to effectively carry out a financial reimbursement process which will lead to quicker economic recovery.

Learn more about the relationship of spill response, regulations, and research to socio-economic impacts in Sections 3, 4, and 5 of this guide.

Learn about managing perceptions and risk communication in Guidance Sheets 5 and 6.

Learn about effectively using traditional and social media during response in Guidance Sheets 7 and 8.

As noted, claims require valid, reliable data to document loss of use as well as tangible financial data to prove economic injury. Lack of such data can lead to lengthy and costly legal proceedings, and delays in economic recovery. One of the basic steps in calculating economic, as opposed to biological, damages from an oil spill is quantifying financial contributions from recreational use and level of tourism to the local economy before a spill occurs. There needs to be a systematic identification of recreational resources with comprehensive documentation of recreational use rates, and revenues whenever feasible. The aim is to ensure that there is clear and known baseline data to compare pre and post-spill changes in costs and revenues.

Tourism and Fishing Claims

Tourism and fishing businesses are most likely to be impacted by oil and HNS pollution. Wise business practices can help expedite timely processing of claims. The most important supporting documentation will be copies of company bookkeeping accounts or other financial statements.

Where records exist, copies of financial accounts for at least three years before the spill event should be provided to allow an understanding of the business and normal trading patterns and any effects on income due to the spill. If circumstances allow, accounts for a period after the incident may also be provided. If formal financial accounts are unavailable, copies of business records, tax receipts, receipts of purchases, the number of hotel rooms let, the number of restaurant customers served or tickets sold for an attraction, may all be necessary to support a claim (ITOPF, 2012b).

Pre-spill assessments are concerned with answering basic questions:

1. What are the potential impacts?
2. Which groups or organisations are likely to be affected?
3. What are the vulnerabilities, or differential susceptibility to harm, among those groups and organisations?
4. What is the historical data that should be captured in the pre-spill assessment and how often should that data be updated?

The objective of pre-assessment is to document visitation and spending/revenue generation data from travel-related sectors in potentially impacted areas, such as:

- Commercial Recreation
  - Businesses that provide direct recreational services to recreationists
  - Businesses that sell or rent equipment or products or provide services directly to recreationists
  - Businesses that train recreationists
  - Businesses and manufacturers that provide services, products or equipment in support of recreation

- Travel and Tourism
  - Businesses that provide transportation
  - Businesses that provide lodging
  - Businesses that provide food and beverages
  - Businesses that provide direct recreational services to travelers
  - Businesses that sell or rent equipment or products or provide services directly to tourists
  - Businesses and manufacturers that provide services, products, or equipment in support of tourism

Response Actions (During Spill)

Local authorities need to be mindful that when a large oil spill occurs, coastal communities may be affected in many ways. Spills may generate economic revenue in one sector but cause economic losses in another. An area's reputation for natural beauty and bounty may be threatened which also will affect local authorities. Any work that has been implemented during preparedness as described above will help local authorities and their communities more effectively cope with a spill and associated changes, damages, and impacts.

Positive economic changes are possible which also need to be managed. When an area is in proximity to the spilled oil, there may be economic opportunities. Responders will need and pay for support service for the response, such as staging areas for equipment, hotels and restaurants for responders, and waste disposal sites. This can provide a positive economic boost for some industries. For tourism and fishing areas in the same location, the outcome may be the opposite. Where equipment and waste are stored, routes of access, by heavy equipment and oiled equipment, can all impact the appearance of the local area both during and after the response.

The Shoreline Response Centre (SRC), Strategic Co-ordinating Group (SCG) and Tactical Co-ordinating Group (TCG) would be responsible for managing the clean-up of oil onshore. Responders have options for managing spilled oil and a system for defining the extent of oiling, setting priorities for clean-up and selecting techniques to clean up the oil. Local authorities and communities may have opportunities for input into the response decision making.

Learn about response options, encounter rate, shoreline clean-up, and shoreline clean-up assessment technique (SCAT) in Section 3.

During a response, the response organisation can work with local authorities and the Recovery Co-ordination Group (RCG) to address the most appropriate areas for such activities to minimise the damage to beaches and other areas frequented by tourists. The RCG is a non-governmental group established locally at the onset of the incident and is responsible for designing the strategy for the community to recover from the spill or release. The RCG can assist responders and the community with respect to:

- Placement of response equipment and waste.
- Routes used for responder beach/area access.
- Access to harbours being boomed as part of a spill response.
- Sensitive areas that must be avoided.
- Messaging presented to the press.

If a community becomes fearful about spill-related impacts on human health and seafood safety, public health officials and other trusted individuals and experts, e.g., community health workers, physicians and pharmacists, should meet with technical specialists in the response organisation, e.g., Environment Group, to prepare risk communication information which addresses community questions, concerns and perceptions.

During the response, it is advisable for local and regional leaders and stakeholders to work together to provide updates to accurately inform the public about the condition of areas of interest to tourists so they can make appropriate travel plans. Consider the following questions to help plan how the community will work with the response organisation in areas with ongoing response activities:

- What response activities are taking place in the community and what, if any, are the adverse effects that need to be managed?
- What parts of the local area have/have not been affected (beaches, etc.)
- What towns or villages have/ have not been affected?
- What harbours can or cannot be accessed?
- If commercial fishing is continuing, are there any potential seafood safety concerns?
- What is the possible duration of on-site response and what are the expected outcomes?

When economic damages begin to occur following a spill, the first level of economic support to business owners will be efficiently processing claims by the polluter's insurers. Local businesses, especially those related to tourism and the fishing, may experience losses for some time after an incident ends. Figure 2.10.2 compares the disruption to tourism following several large oil spills. Duration is calculated as the combined length of time that there was physical disruption to tourism services in addition to the time period for which perceptions were affected. This is measured as the time between the start of each event and the time that visits and spending return to normal levels.

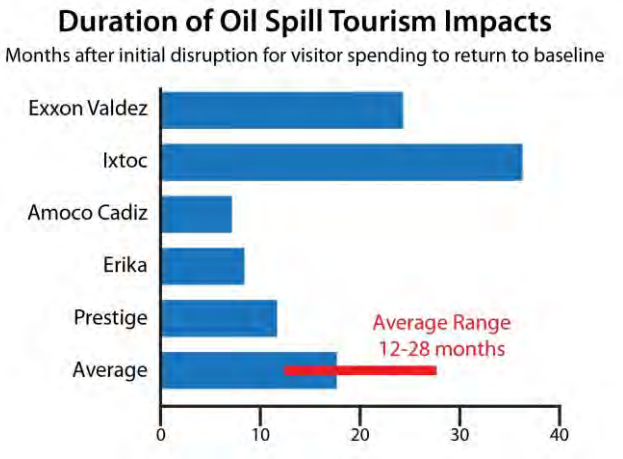

Figure 2.10.2. *Duration of Oil Spill Tourism Impacts. Source: Tourism Economics, 2010.*

Promote public confidence in these industries through good co-ordination between response organisations, government, media, local leaders, and stakeholders. The response organisation may be able to help arrange for media interviews, and provide situation updates for release both to traditional media and for posting on social media. This information can be used by tourist associations to learn about the progress of the response and what areas are, or are not, affected by the incident and the status of fishing ground closures and seafood safety concerns. Information about the status of the response which is publicly available can be used by potential tourists to make decisions regarding their intention to visit the area now, or to plan a visit in the near future. This information also influences buying decisions of seafood distributors and restaurants. All of these steps contribute to the maintenance and rebuilding of tourism and the fishing industry, as well as economic recovery in the entire area.

Members in a resilient community can work together to help achieve these goals. Local and regional leaders could initiate an organised promotional campaign. An influx of marketing funds to promote impacted businesses can help them recover. Marketing campaign funds may come from local, regional and national government agencies, stakeholders, the polluter and damage claim payments. In order to acquire funds for the recovery process, it is vital to commence the claims process by utilising the pre-

spill documentation. This provides a baseline assessment for negotiating with insurers. Receiving compensation for damages quickly can help keep businesses economically viable so they can participate in the local and regional recovery.

Communities in the area can work together on joint projects such as:

- Media campaigns and advertising highlighting the successful clean-up effort and the resurgence of various activities in the town or region.
- Seafood promotion campaigns, with media tasting events and famous chefs using area seafood on cooking shows, morning TV programs, and in their restaurants.
- Following up with personal calls to media representatives that visited the affected area while covering the incident, and meeting with representatives from various television stations and print media e.g., newspapers, magazines.
- Releases and story ideas distributed to a database of travel writers.
- Establishing a tourism help line so prospective tourists can find out the status of the area(s) they wish to visit.
- Conducting a press conference on the anniversary of the incident to highlight the recovery.

Social and Economic Impacts
Tips from the Responder Survey

- Identify key spokespeople and make full use of the community liaison.
- Don't be overly reassuring. State things in orders of magnitude rather than specific numbers.
- Work with the media to push the facts and estimates forward, even if they are negative. Provide clear and concise messages.
- A list of unaffected and “open for business” areas should also be provided to the media.
- Before closing beaches, fishing grounds, and other public areas, consider how they will be reopened. Ensure criteria are in place so that the reopening can be justified.
- Engagement between health and environmental organisations, local industries and relevant political bodies is important. They need to work together to define policy following an event and during recovery.
- If possible, utilise local knowledge, skills and equipment in the response to help minimise loss of livelihood during the clean-up. Making community members feel part of the response helps them to stay positive and decreases the chance of damaging interviews to the media. Local fishermen are a good example.
- Feature third party witnesses to unaffected areas, famous people eating seafood, enjoying the beaches, and so on.

ADDITIONAL INFORMATION

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Guidance Sheet 11 - Recovery Planning

Summary Points

- Recovery is the process of rebuilding, restoring, and rehabilitating the community following an emergency. The Civil Contingency Act of 2004 (CCA) guides recovery planning for emergencies.
- To promote successful recovery from a large-scale emergency or disaster, community leaders and stakeholders can plan ahead for recovery activities to transition smoothly from emergency response.
- During preparedness a Recovery Options Template can be developed for a Community Emergency Plan which can guide this final phase.
- Local authorities can establish a Recovery Co-ordinating Group (RCG) when necessary to transition on-site work from the final stage of active spill response to longer-term recovery. The RCG would become the decision making body for the recovery phase.
- The local authority usually is responsible for making membership decisions for the RCG. Membership generally will be based on the type of emergency. Some agencies that were not involved in the response phase may be needed during the recovery process.
- The RCG can plan a recovery strategy and guide its implementation.

OBJECTIVE

The objective of this guidance sheet is to consider how community engagement can help plan a successful recovery from a major oil or HNS spill which may be viewed by a community as a technological disaster.

Recovery involves implementing actions that build on community resilience and improve the speed with which the community is restored after the incident. These actions are a form of community engagement. When a major oil or HNS spill occurs, the surrounding areas may be significantly impacted in many ways, such as environmental damage, disruption of industry, closing of shops, community stress, and others. When the response is over, the local authorities and community may be left to deal with many of these problems themselves. To better address such situations, community leaders and stakeholders could plan ahead of time to find ways to restore the area to an acceptable condition and socioeconomic status. What specifically needs to be done cannot be decided until the incident and response nears an end and the extent and type of damages left behind become clear. However, a framework for recovery and restoration can be developed during preparedness to speed decision making and progress if the need arises. This guidance sheet describes steps that can be taken to create this framework.

DEFINITION

Recovery is the process of rebuilding, rehabilitating, and restoring the community following an emergency. It is more than physical restoration; it encompasses socio-economic as well as public health and welfare recovery. Recovery after a disaster is a process guided by community members to return their lives to a steady state that is as close to normal as possible. This means restoring the local economy, cultural norms, neighbourhoods, parks, and other aspects of life that bind a community together.

Recovery is most successful with resilient communities that enable the active participation of the affected people and a strong reliance on local capacities and expertise. The recovery phase ramps up as the on-scene tactical response phase is winding down.

Please refer to Guidance Sheet 1 for a discussion of community resilience planning for oil and HNS spills.

Planning Actions (Pre-spill)

It is helpful to gather data about the community and surrounding areas for use in planning both response and recovery actions. Such data might include population size and distribution, buildings and types of construction, communication resources, sheltering places, stakeholder contacts, and so on.

During recovery and restoration, many agencies may be involved and communication and co-ordination between them will be of utmost importance. Therefore it is helpful to consider during preparedness the agency relations need to be developed and co-ordinated, which may range from the Wales government, Maritime and Coastguard Agency (MCA), devolved administrations, local resilience forums, community groups, and others. Discussions can be held with Harbour Authorities and response specialists to consider scenarios that could affect the community, potential advantages and disadvantages of oil and HNS clean-up choices, such as whether to use pressure washing on oiled property.

Response Actions (During Spill)

Sometime after the onset of a serious emergency response, local authorities may establish a RCG. The response organisation may work with the RCG to determine the best way to proceed and ensure that response actions do not hinder the implementation of a recovery strategy in the community. It is not unusual for the recovery phase to begin soon after an emergency occurs and operate in tandem with the emergency response.

The formation of a RCG is an important step in beginning of an incident recovery. The membership for the RCG is based on the type of emergency, usually after a request by, or agreement with, the Strategic Co-ordinating Group (SCG) under the Civil Contingencies Act of 2004 (CCA) authority, since the SCG co-ordinates the shoreline response with the Shoreline Response Centre, which operates under the authority of the NCP. The RCG is considered the decision-making body for the recovery phase after the spill response organisation has agreed to hand over responsibility to them. The organisation chart in Figure 2.11.1 is an example configuration of the RCG, recognising that the actual configuration will determined by incident needs.

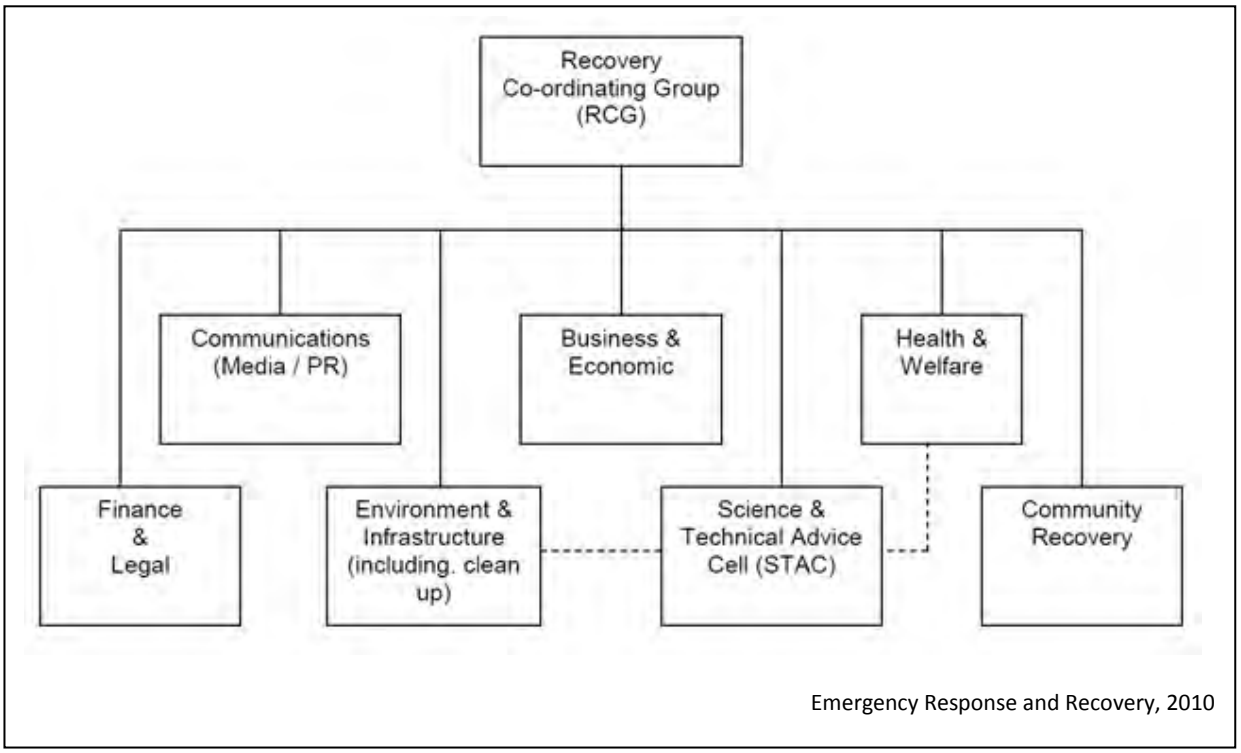

Figure 2.11.1. *Organisational Chart Illustrating Configuration of RCG.*

The RCG has capabilities to determine the recovery strategy for the incident and may have responsibility to oversee implementation of that strategy. The recovery strategy covers matters such as the following found in the Cabinet Office's Emergency Response and Recovery guidance paper http://www.cabinetoffice.gov.uk/content/national-recovery-guidance:

- An Impact Assessment (covering impacts to residents, businesses, infrastructure, environment, etc.) is carried out as soon as possible and is regularly updated;
- Determining at an early stage if there is an opportunity for longer term community improvements and economic development as part of the recovery process;
- A concise, balanced, affordable recovery action plan is developed that can be quickly implemented, involves all agencies, fits the needs of the emergency and fully involves the community in the recovery process.
- Methods to involve agencies and organisations involved in community resilience.
- Establishment of a pro-active and integrated framework of support to businesses.
- Co-ordinating environmental protection and recovery issues.
- And others depending on the situation.

RECOVERY ACTIONS (POST-SPILL)

Once on-site response operations have ended, the RCG may assess the situation with regard to any residual contamination by oil or HNS.

Management of recovery is best accomplished at the local level with the affected community joining together as a "resilient community", drawing on local resources and expertise. However, each community may not be equipped to address all of the issues involved with the recovery. As a result, some agencies that were not involved in the response phase may be needed during the recovery process and a lead recovery officer would be responsible for managing their integration. For example, health and psychological issues can arise following a disaster. Experience shows that managing a recovery is most successful when the agencies involved in human welfare have a primary role in the decision making that affects human health and well-being.

Restoring the community and marketing to rebuild local industries may require a sizable expenditure. Direct and indirect damages as well as other costs to the community are typically covered, at least in part, by insurance policies protecting the polluter. Costs not covered by insurance may be paid directly by the polluter. For costs not paid by insurance or the polluter, the government may provide some funding to communities to help them recover, depending on the type and severity of the incident.

When it has been determined that multi-agency co-ordination is no longer required and any remaining issues can be handled as part of normal operations by individual agencies, the RCG will be closed.

Local Resilience Forums can organise and co-ordinate within their organisations and with the RCG. They can help sort out what community members can provide transportation, heavy equipment, communications equipment, catering, health related services, and many other resources that might be useful. Gathering of information about damages, needs of the community, and restoration needs is essential for resilience forums to fulfill their role. These forums therefore need to communicate and potentially co-ordinate with the response organisation, especially during the active on-site phase of a spill response.

See Guidance Sheet 10 for information on claims and compensation for social and economic damages and losses from spills.

3. Technical Foundation for Spill Engagement

Summary Points

- Local authorities can help the community and other local stakeholders form realistic expectations about spill response before, during, and after a spill to better understand:
  - What actions are important, possible and feasible to mitigate the situation,
  - Reduce exposure of the public and the environment to pollutants, and thereby
  - Reduce the potential for impacts which will in turn
- Enhance recovery of the environment and the community.
- Every spill is unique in various ways and an effective response must be tailored (from preparedness scenarios) to the actual situation and field conditions. An accurate generalisation about spills and impacts is that "*It depends …*"
- As a pollutant moves away from its source, its spread and concentration is less uniform and not continuous. This means the extent of contamination is patchy; and the potential exposure to hazards and resulting impacts are also patchy, that is, exposure and impacts are neither uniform nor continuous in the environment as time passes.
- Response organisations, industry organisations and trade associations, contingency plans, training, good practice guides and international standards are all relevant, useful sources of information for local authorities and communities to learn about potential spill risks in their areas and effective ways to manage potential spills.
- During a spill, time-critical decisions must be made to select a course of action that in best professional judgment will yield the best outcome, given uncertainly and incomplete knowledge about the situation and how this spill will interact with the environment.
- Spill emergencies require rapid situation assessment and control actions to contain the pollutant at the source, limit pollutant spread, and prevent exposure of the public and the environment to the pollutant hazards.
- The properties and behaviour of pollutants can change once spilled into the environment. Responders try to anticipate and understand how these changes will affect response options.
- When a spill occurs in spite of best source control efforts, the goal of responders is to reduce the potential impacts of the spilled pollutant, not necessarily to remove all of the pollutant from the environment. Complete removal of the pollutant may do more harm to the environment than leaving it to degrade naturally.
- Each response option has value when used appropriately. No single response option is a complete solution; each response option has limitations. A key aspect to consider when evaluating response options is the encounter rate of various types of response equipment.
- Effective response strategically uses a mix of response options to mitigate pollutant hazards and impacts. Considering the best mix of response options is done using Net Environmental Benefit Analysis (NEBA).
- The scale of, and potential hazards from, a spill is influenced by many variables. Important variables include but are not limited to: pollutant type and volume; duration of release (over

time/continuous or instantaneous); prevailing weather conditions; time of year (season); water depth, temperature and proximity to shore; presence and relative importance of wildlife and habitats in proximity to the spill location; duration of potential exposure to pollutants; life stage (e.g., juvenile or adult) and spatial location (water surface, water column, sea bottom or shoreline) of sensitive resources and habitats in relation to the pollutant.

- Especially during HNS incidents, the primary risk may be to human health rather than the environment. This means that first responders from the local area may be among the technical specialists called in to advise and assist, in addition to spill response personnel.
- The exact nature and duration of any impacts from a spill depend on such factors as the type and amount of pollutant and its behaviour once spilled; the physical characteristics of the affected area; weather conditions and season; the type and effectiveness of the clean-up response; the biological and economic characteristics of the area and their sensitivity to oil pollution.
- Typical environmental effects of spilled oil on habitats and marine organisms vary with the patchy extent of contamination and relative vulnerability and sensitivity to oil and response options. Oil impacts range across a spectrum from toxicity (especially for light oils and products) to smothering (heavier oils and weathered residues). The presence of toxic components does not always cause mortality and spill studies have shown that the environment also has the capacity for resilience and recovery from oil spill impacts, with some habitats and organisms recovering more quickly than others.

Establishing realistic expectations about spill response helps build a foundation for successful community engagement. This section provides a brief overview of some important technical aspects of oil and HNS spill response. Choosing the right course of action requires the rapid consideration of the known variables of the spill – beginning with the initial report of the spill to the conclusion when decisions are made to terminate on-scene response operations and clean-up efforts.

Unless a community has experienced multiple spills, they may not know what to expect or do, and how different conditions can result in different outcomes. They may be unfamiliar with which options are available and feasible to mitigate the situation and potential impacts. Response strategies should consider what an area values most when setting response priorities, especially when spills could threaten or impact their livelihood and community welfare.

Speak with harbour authorities and spill practitioners in your area and review the good practice guides mentioned in this guide to learn more about oil and HNS spills.

Also please review: **Local Authorities' Guide: What to do in the event of a spill?** (Mailly, 2011)
http://www.arcopol.eu/arcopol/archivos/documentacion/37/Local%20Authorities%20Guide-final.pdf

Practice Guides and Spill Preparedness

Both government and industry recognise that pre-incident work is necessary in order to make timely, technically appropriate response decisions. Some preparedness work is required by government

regulations. For example, parties to the International Convention on Oil Pollution Preparedness, Response, and Co-operation (OPRC) are required to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries, and the UK is a Party. Beyond requirements, additional pre-incident work has been done because the need and benefit is obvious.

Response organisations, industry organisations and trade associations, plans, training, good practices and international standards are useful sources of information for local authorities to learn about potential spill risks in their areas and ways to manage potential spills. This information generally reflects realistic technical and scientific experience of government, industry, consultancies, and companies specifically involved in oil and HNS operations. Local harbour authorities also can identify relevant references to learn more about oil and HNS spills when engaging with communities.

The role of local authorities in HNS incidents is supported internationally through the United Nations Environment Programme Awareness and Preparedness for Emergencies at Local Level (APELL). In 2010 APELL published a Multi-Hazard Training Kit for local authorities for Community Vulnerability Reduction, Prevention, and Preparedness which expands and updates their consultation document under the International Maritime Organization-United Nations Environment Programme (IMO-UNEP) (1996) *Preparedness and Response to Chemical Incidents in Ports* document.

The APELL Multi-Hazard Training Kit for Local Authorities for Community Vulnerability Reduction, Prevention and Preparedness can be downloaded from: http://www.unep.fr/shared/publications/pdf/DTIx1289xPA-APELLMulti-HazardTrainingKit.pdf

Contingency plans and good practice documents contain technical information about responding to oil and HNS spills. Companies that produce, transport, store and use oil and HNS for various purposes are required to prepare contingency plans to comply with regulations at various government levels. Various industry organisations have compiled user-friendly guidance documents which reflect a broad range of science and experience-based knowledge about responding to oil and HSN spills.

The organisations below are described because they have produced multi-volume sets of knowledge-based (experience and science) publications that are concise and easy-to-understand on a broad range of spill response topics. IPIECA and the International Tanker Owners Pollution Federation (ITOPF) are located in the UK and Centre of Documentation, Research and Experimentation on Accidental Water Pollution (CEDRE) in France. ITOPF and CEDRE publications address both oil and HNS spills.

IPIECA

IPIECA is the global oil and gas industry association for environmental and social issues. When IPIECA was set up in 1974 following the launch of the UNEP, the acronym stood for the International Petroleum Industry Environmental Conservation Association. In 2009, recognising that this no longer accurately reflected the breadth and scope of the association's work, IPIECA stopped using the full title. The association is now known as IPIECA, the global oil and gas industry association for environmental and social issues. IPIECA is the only global association involving both the upstream and downstream oil and gas industry on environmental and social issues. IPIECA's membership covers over half of the world's oil production and is the industry's principal channel of communication with the United Nations. IPIECA's Oil Spill Working Group (OSWG) was established in 1987 and serves as a key international industry forum to help improve oil spill contingency planning and response around the world.

The web entrance to IPIECA's oil spill preparedness is: http://www.ipieca.org/focus-area/oil-spill-preparedness

International Tanker Owners Pollution Federation (ITOPF)

ITOPF is a not-for-profit organisation involved in all aspects of preparing for and responding to ship-source spills of oil, chemicals, and other substances in the marine environment. The ITOPF staff consists of international scientists from a variety of disciplines who respond to spills worldwide. ITOPF was established in 1968 in the wake of the *Torrey Canyon* incident.

ITOPF devotes considerable effort to a wide range of technical services, of which the most important is responding to spills of oil and chemicals. ITOPF's small response team is at constant readiness to assist with marine spills anywhere in the world. This service is normally undertaken on behalf of its Members (tanker owners) or Associates (other ship owners) and their oil pollution insurers (normally one of the P&I Clubs); they may also be activated on request by governments or international agencies such as the IOPC Funds.

The web entrance to ITOPF is at: http://www.itopf.com/

Centre of Documentation, Research and Experimentation on Accidental Water Pollution (CEDRE)

CEDRE is a non-profit-making association created on 25 January 1979 as one of the measures taken in the aftermath of the *Amoco Cadiz* oil spill, to improve spill response preparedness and strengthen the national response organisation. Like ITOPF, the staff consists of experienced scientists from a variety of disciplines. Located in Brest, France, CEDRE is responsible for documentation, research and experimentation on pollutants, their effects and the response means and tools that can be used to combat them within France. It is charged with providing advice and expertise to the authorities responsible for responding to accidental pollution. CEDRE has an extensive publications library online which include many operational and chemical response guides. CEDRE is available around the clock for national and local authorities in charge of response to accidental water pollution according to the legislation in force, whatever the extent of the pollution. These authorities can benefit from technical and scientific assistance from CEDRE, and, in certain cases, specialists can be sent to crisis management centres or to the field.

The web entrance to CEDRE is at: http://www.cedre.fr/index-en.php

Another source of information about health effects related to petroleum products is CONCAWE (CONservation of Clean Air and Water in Europe), the oil companies' European association for environment, health and safety in refining and distribution. CONCAWE health publications can be accessed at: https://www.concawe.eu/content/default.asp?PageID=553

OIL AND HNS SPILLS – AN INTRODUCTION

This section is an introduction to oil and HNS spill response. ***The aim of this section is to provide an overview and raise awareness of local authority and community readers about the diverse technical aspects of spill response decisions***. It is beyond the scope of this manual to provide a comprehensive and complete discussion of the many aspects of spill response. Website links and references are suggested for readers to find additional information.

Oil and HNS spills typically involve the accidental release of oil, chemicals and other substances which can be hazardous to the environment and people. It is important to understand that oil is actually a mixture of many chemical compounds. Oil spills threaten marine and coastal environments (organisms and habitats), and those dependent upon those areas and resources for their livelihood, such as the tourism or fishing industries. Components of the oil also can be hazardous to human health. Oils can be either persistent, like crude oil, or non-persistent, like gasoline. There are hundreds of different types of crude oil and thousands of different HNS**.** Reviewing past oil and HNS spill case histories provides valuable insights and lessons for future spill preparedness and response.

CEDRE has summarised many oil and HNS case studies which can be reviewed at: http://www.cedre.fr/en/spill/alphabetical-classification.php.

The ITOPF website also has case studies of past major spill incidents beginning in 1967: http://www.itopf.com/information-services/data-and-statistics/case-histories/

When a pollutant is spilled it undergoes a number of physical and chemical changes. When oil is spilled into the sea, some of these changes lead to its removal from the sea surface, and other may cause it to persist. The fate of spilled oil in the marine environment depends upon a variety of factors such as the composition of the oil, its initial chemical and physical properties, the ambient climatic and sea conditions and whether the oil remains at sea or is washed ashore. An understanding of the processes involved and how they interact to alter the nature and behaviour of oil is fundamental to all aspects of spill response. When an active response is required, the type of oil and its probable behaviour will determine which response options are likely to be most effective (ITOPF, 2012a).

HNS spills involve materials which can present human health hazards, environmental hazards, or both. HNS are defined in the International Convention on Oil Pollution Preparedness, Response and Co-operation by Hazardous and Noxious Substances 2000 (OPRC-HNS Protocol – refer to Section 4, however, the UK has not yet signed the HNS Protocol). There are many more kinds of HNS than types of oil, and too many to generalise about other than the hazardous properties they exhibit. Under the OPRC-HNS Protocol, a HNS exhibits one or more of the following properties: flammable, explosive, toxic, corrosive or reactive (ITOPF, 2012c).

Oil and HNS responders possess technical and scientific knowledge, experience, and training that allows them to rapidly assess a situation to develop a strategic plan that will provide the best opportunity for using situation-appropriate response options to protect the environment and the public.

SCALE OF RESPONSE

Estimating the scale of a response is one way for local authorities and communities to consider how long on-site operations could continue, and could be disruptive. Scale of response refers to the magnitude of response. It takes into account the number of response resources needed for a given spill volume and

location, geographic area affected, and duration of active operations on site.

Internationally and under the UK National Contingency Plan (NCP), tiers are used to categorise oil spill incidents for contingency planning and response. The tier approach aides in establishing a level of response and anticipating the organisation and resources needed to manage a specific situation. According to the UK NCP, Tier 1 incidents are within the capability of one local or harbour authority and Tier 2 incidents are beyond the capability of one local authority, and Tier 3 incidents require national resources, and may also require international resources. Figure 3.1 illustrates the size of an incident in relation to the international tiers and the applicable contingency plans and agreements.

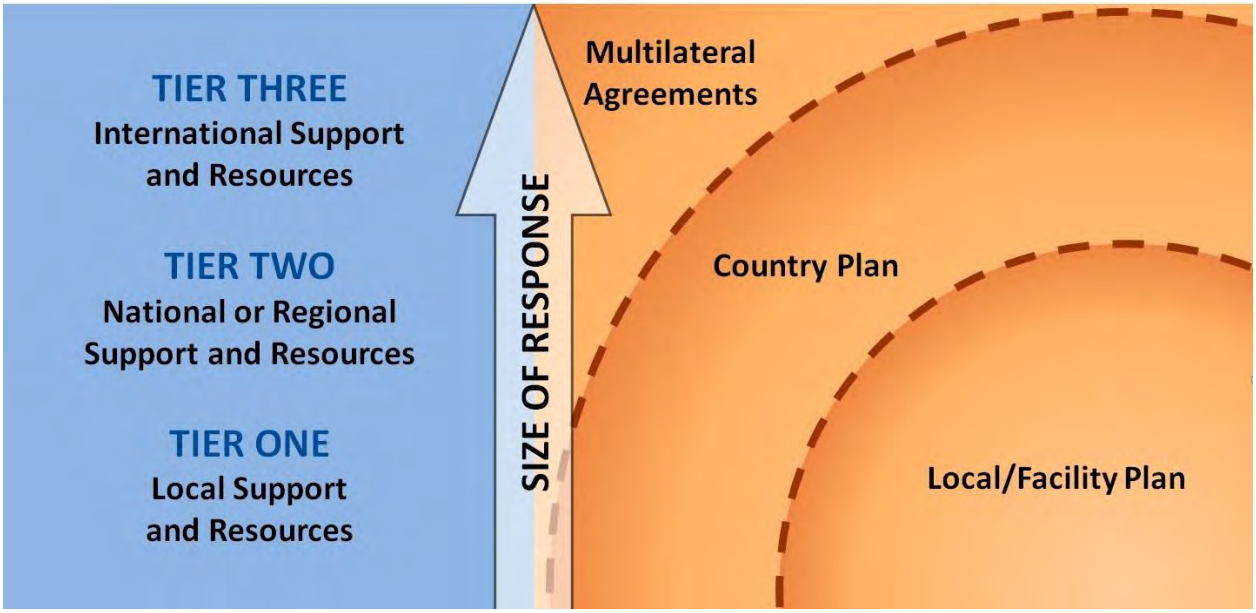

Figure 3.1. *International Tiers of Response in relation to Contingency Plans. Source: O'Driscoll 2012.*

As part of local area contingency planning, it can be helpful to consider the potential community disruption from various spill scenarios which might be possible from oil and HNS operations and shipping in the vicinity. Large volumes of persistent floating oil can spread and contaminate large geographic distances, coating and impacting wildlife, sensitive habitats, and tourist or fishing areas. This means that multiple communities could be impacted. If an oil spill clean-up interrupts businesses that are dependent on natural resources, such as recreational and commercial fishing, the socioeconomic impacts on a community may be significant**.** A community's resilience in the face of these challenges is an important aspect of the area's recovery from a large spill, such as a Tier 3 spill.

Some Tier 3 spills require international resources and have extensive reach and impacts because of the incident-specific mix of variables, e.g., large volume of persistent oil which spreads over a large geographic area, in relation to the sensitivity of the natural and cultural environment. Such spills may significantly impact local communities that are dependent upon coastal resources. But not all Tier 3 spills have the same level of impact. The Montara well blowout occurred in the Timor Sea about 250km from the Western Australian coast. This uncontrolled release of an average of 400 barrels-per-day of light crude oil began April 21, 2009 and was stopped on November 3, 2009 (Australian Maritime Safety Authority 2010). Although it was considered a Tier 3 spill in Australia, due to the incident-specific conditions, no oil reached the coastlines of Australia or Indonesia.

The extent of media interest and coverage can also affect the scale of response. On a slow news day even a very small spill can escalate public attention and become a catalyst for responders to do more than the situation might warrant technically. During the Deepwater Horizon oil spill, public and political demands for additional response resources were fuelled by media coverage and a poor understanding by parish (county) presidents about whether those additional resources would be likely to prevent floating oil from coming ashore and thereby improve the outcome.

SPILL VARIABLES

As noted above, the potential hazards, scale of, and response to a spill is influenced by many variables. Important variables include, but are not limited to: pollutant composition and volume, duration of release (over time or instantaneous), prevailing weather conditions, time of year, water depth and proximity to shore, proximity to communities, presence and relative importance of wildlife and habitats in proximity to the spill location.

Learn more about the variables which influence marine spill response and impacts:

- Oil spills - The Fate of Marine Oil Spills; available from: http://www.itopf.com/information-services/publications/documents/TIP2FateofMarineOilSpills.pdf
- HNS spills - Response to Marine Chemical Incidents; available from: http://www.itopf.com/information-services/publications/documents/TIP2FateofMarineOilSpills.pdf

Pollutant Composition and Behaviour

What happens to a spilled pollutant (its fate in the environment) depends on its chemical composition and physical properties. Persistent oil, such as crude oil, usually floats on the water surface and some of it (but generally not all) can be recovered from the environment. Non-persistent oil, such as refined products like gasoline, evaporates more readily into the air, dilutes into to the water, and is far less recoverable than floating, persistent oil. Types of oil are sometimes grouped according to physical and chemical properties as shown in Figure 3.2.

Unlike oil, HNS[3] may completely dissolve, undergo a physical or chemical reaction, or remain inert when introduced to the atmosphere or receiving water body. The environmental toxicity of an HNS varies for each HNS depending on its reactivity in the environment. Human health hazards also vary according to the chemical and physical properties of a given HNS.

Oil begins to weather, or change, as soon as it is released into the environment, e.g., water surface, subsea, or from a facility on land. Weathering is a combination of physical and chemical processes which

[3] The IMO International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS), defines a HNS by reference to lists of substances included in various IMO Conventions and Codes. These include oils; other liquid substances defined as noxious or dangerous; liquefied gases; liquid substances with a flashpoint not exceeding 60°C; dangerous, hazardous and harmful materials and substances carried in packaged form; and solid bulk materials defined as possessing chemical hazards. The Convention also covers residues left by the previous carriage of HNS, other than those carried in packaged form.

affects behaviour of spilled oil. Weathering processes are very important to consider because they alter the characteristics of the oil. As soon as it is spilt, the physical and chemical characteristics will begin to change. When a spill occurs, responders immediately consider the influence of weathering processes in relation to available and feasible response options.

Different oil types have different physical properties, chemical composition and toxicity, and their behavior may depend on the environmental conditions at the time of the spill.

Oil type	Class I: Very Light	Class II Light	Class III Medium	Class IV Heavy	Class V Very Heavy
Examples	Jet fuel, gasoline	Diesel and light crudes	Paraffin-based oils, most crude oils	No. 6. fuel oils, heavy crudes	Heavy crude oils, asphalt
Toxicity to aquatic organisms	High toxicity from soluble compounds	Moderate toxicity from soluble compounds	Moderate to low toxicity	Low toxicity, but high risk of smothering	Relatively non-toxic, but high risk of smothering
Environ. impacts	Likely not severe	May cause long-term intertidal contamination	May cause severe long-term impacts	Possible long-term sediment contamination	
			Can severely impact bird, fur-bearing mammals, and shoreline habitats		

Figure 3.2. Characteristics of different oil classes. Source: A Bejarano, Research Planning, Inc.

Figure 3.3 illustrates various weathering processes which affect spilled oil. The most dominant processes are: spreading, evaporation, emulsification, *natural* dispersion, dissolution, biodegradation, sedimentation and oxidation (refer to Glossary in Section 6). Oil type and on-scene conditions, e.g., winds and waves, influence the effect of these processes on the spilled oil.

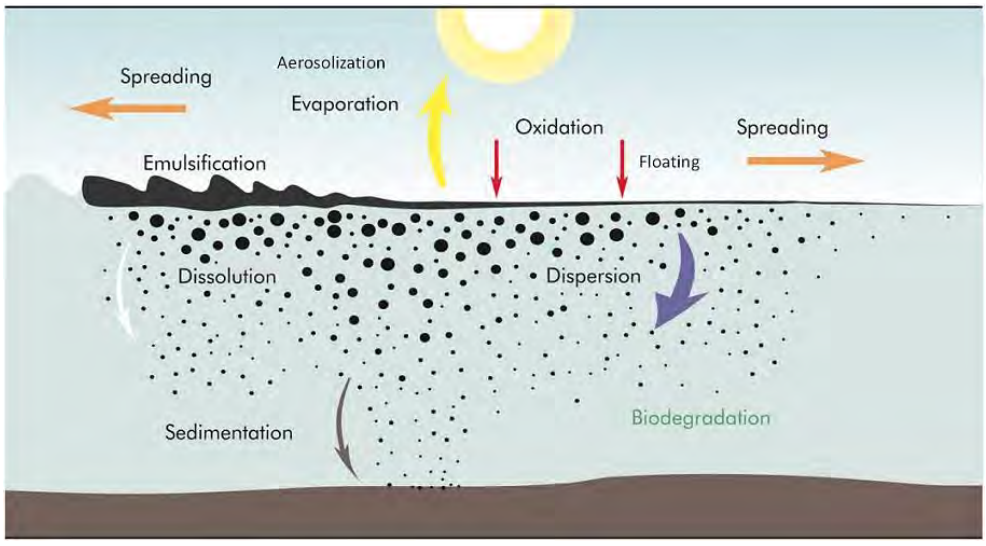

Figure 3.3. *Weathering processes that affect spilled oil behaviour. Source: NOAA.*

For both oil and HNS spills, interaction with surrounding water and air causes the pollutant to spread and become less continuous as it moves away from the source – it becomes patchy. The media and some academic researchers often don't communicate this important point in their statements

about spill contamination and impacts when they generalise in describing hazards, contamination and impacts. Imprecise statements convey an incorrect impression that the movement and fate of the pollutant is homogenous in its extent, coverage and impacts over time in the environment. Conversely, actual field experience demonstrates to spill responders and scientists that spill extent, coverage, exposure and impacts are patchy; NOT continuous or uniform. Figure 3.4 and 3.5 illustrate the patchiness concept which is represented in actual field conditions. Responders use specific criteria for ascribing various degrees of extent of contamination and oiling beyond the coloured keys provided in these figures. Trajectory models and field observation surveys are often used to help guide and manage response activities.

In the US, NOAA has developed a weathering model for many kinds of oils called ADIOS (Automated Data Inquiry for Oil Spills). It can be downloaded at: http://response.restoration.noaa.gov/adios

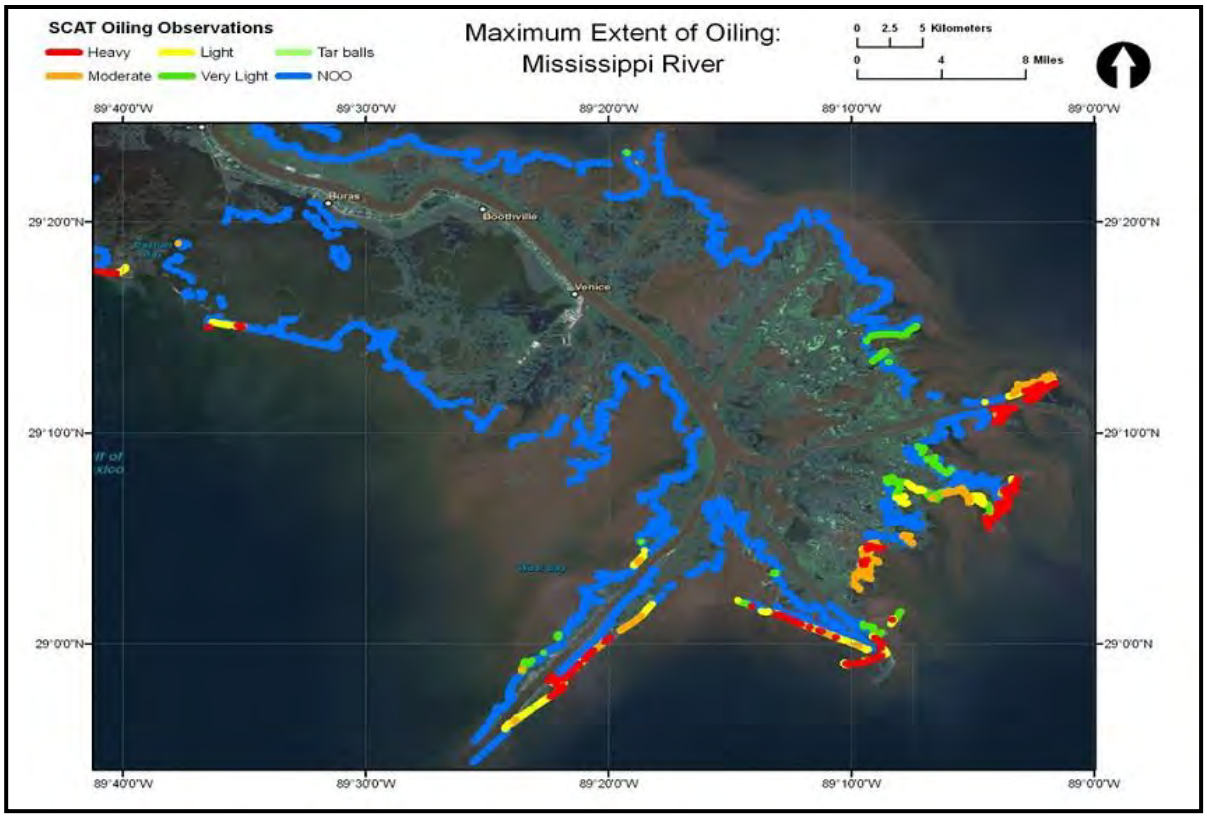

Figure 3.4. *Shoreline oiling map from on-the-ground SCAT (shoreline clean-up assessment technique) surveys during the Deepwater Horizon response. Note that blue corresponds to NOO (no oil observed) and the other colours correspond to different degrees of shoreline oiling. Source: Office of Response and Restoration, NOAA, 2011.*

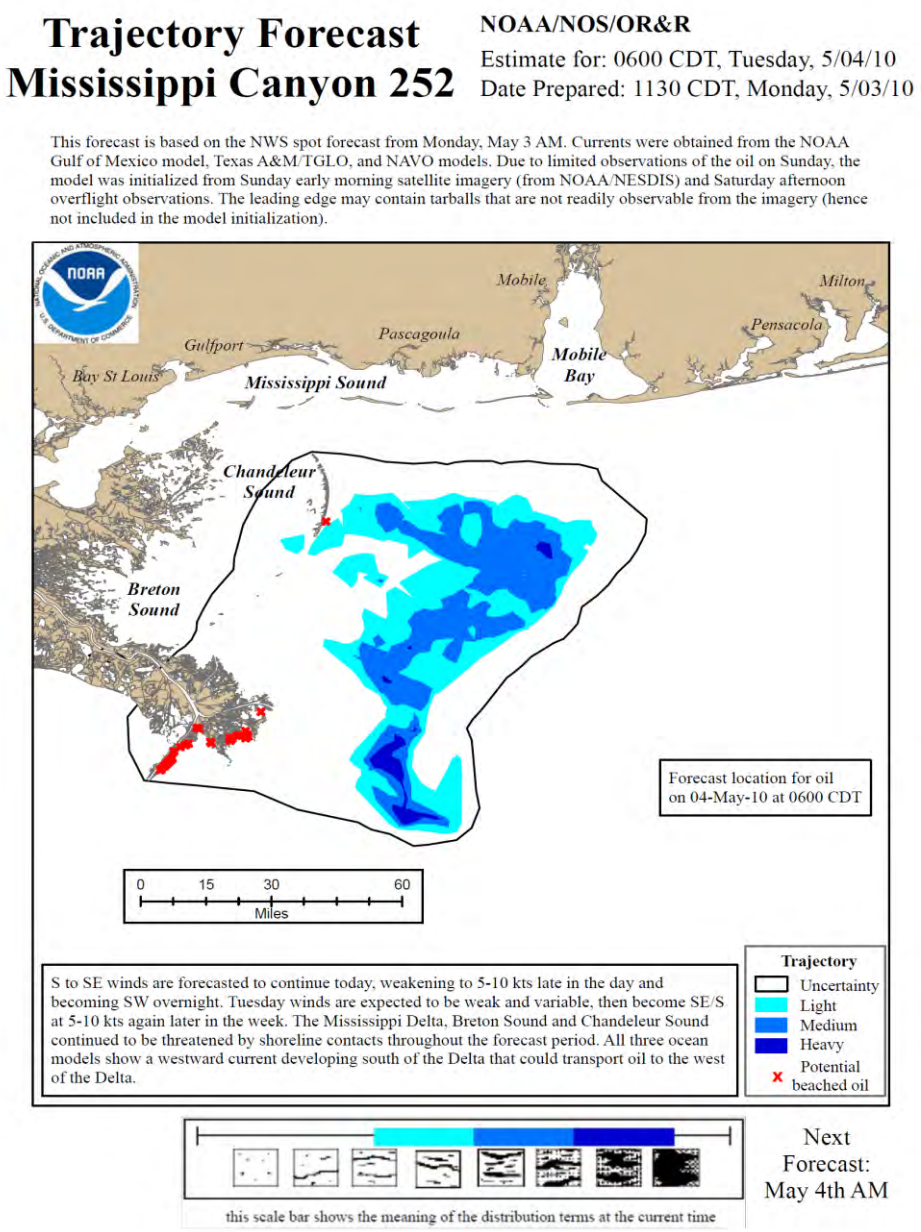

Figure 3.5. *A trajectory model output – on May 4, 2010. This trajectory forecast is a numerical model which is fine-tuned with visual observations by flying over the oiled area. This model output shows that surface oil slicks are patchy in coverage. This output tells where responders should expect to find the heaviest concentrations of surface oil (darkest blue) to areas with lesser oiling (lighter blue and turquoise). It also predicts which shorelines would be impacted (red). The outline indicates the confidence limits in the prediction, that is, it tells responders they could find oil anywhere inside the outline during the period covered by the forecast. Source: Office of Response and Restoration, NOAA, 2011.*

Pollutant Volume

The initial spill volume, or potential volume of the spill, influences the duration of the response and impacts. Volume can be estimated by ship, platform, facility and pipeline operators and takes into account both the volume of damaged equipment and overall potential in the tank, container, or reservoir. It can be a significant challenge to specify a rate of release from a ship, pipeline or blowout when assessing the damage remotely, especially during the initial emergency phase when the situation is still being assessed. The timely success of salvage actions in preventing a ship from sustaining further damage and releasing all its contents is crucial to reducing the potential for shoreline impacts (type of shorelines impacted, degree of oiling, and geographic extent).

Response decision-makers need to have a good understanding of the interactions among the pollutant, conditions in the receiving environment (e.g., wind speed and direction, water depth, temperature), opportunities and limitations of the various response options, and hazard exposure in order to form realistic expectations about what can and cannot be done to mitigate the adverse impacts from spills. This is especially important when engaging with the community and other stakeholders.

Spill Location and Season

The location of the originating spill source and the time of year that the spill occurs affect response options and impacts. Important variables include:

- Depth of water,
- Distance from shore,
- Season,
- Proximity to sensitive environments and the public, and
- Life stage of exposed sensitive resources and habitats.

These and other incident-specific conditions are important considerations when determining which response options will offer the best opportunities to mitigate an incident. Juvenile organisms generally are more vulnerable to pollutants that adults. Sometimes the same type of spilled oil can have serious consequences in one area yet a similar spill under different conditions may result in considerably less environment impact in another area. For example, a spill of gasoline or diesel fuel in deep, offshore waters under calm conditions could have lower environmental impacts than a spill of the same type and volume of the oil in shallow water during stormy weather close to shore where juvenile shellfish might be exposed to oil components mixed into the water column. A spill of persistent oil that strands in a marsh area in winter, for example, is a very different situation from a fresh oil spill that strands on emerging marsh grasses in spring, with regard to both response options and impacts.

RESPONSE OPTIONS

When a spill occurs in spite of best source control efforts, the response organisation must quickly develop a strategic plan for the effective use of response options to mitigate the situation. Each response option has benefits and limitations. Responders realise that each incident occurs with a unique set of conditions and that an effective response must be tailored to actual spill conditions. Timely decision making is crucial because time is the enemy in spill response. Situation-appropriate decisions must be made and implemented quickly to intervene in the course of events and positively change the outcome over what would likely happen with no action. A challenge during all spills is selecting the best course of action when faced with uncertainty and incomplete knowledge about is happening and what could happen.

The term 'response options' broadly refers to the activities, equipment, approaches and technologies used to manage spilled pollutants and mitigate potential impacts. Responders understand that each option and technology available for managing an oil or HNS spill has both benefits and limitations, which are affected by incident-specific conditions.

The World Catalogue of Oil Spill Response Products can be found at: http://www.slross.com/WorldCat/WorldCatmain.htm.

Regional associations, contractors and equipment used for response options can be found at: http://www.cleanupoil.com/index.html.

Net Environmental Benefit Analysis

Decades of spill experience and research has shown that ***the complete removal of pollutants sometimes can be more damaging to the environment than leaving it in place***.

With regard to environmental impacts, the process of determining the optimal course of response action(s), including surveillance and monitoring only, is referred to as Net Environmental Benefit Analysis (NEBA).

NEBA compares the relative limitations and benefits of the various response options for a specific-spill situation or in a planning scenario to identify which option(s) will result in the best outcome for the environment. Another concept used in Europe is the Net Environmental Damage and Response Assessment (NEDRA).

An IPEICA publication describing NEBA (2000) can be found at http://www.ipieca.org/publication/choosing-spill-options-minimise-damage-net-environmental-benefit-analysis

Also refer to a Report to IUCN, The World Conservation Union - Criteria for Evaluating Oil Spill Planning and Response Operations
http://cmsdata.iucn.org/downloads/iucnfinal_report_on_osr.pdf

Potential response option benefits and limitations are considered during a net environmental benefit analysis (NEBA). NEBA can be conducted during preparedness using local area scenarios or during a spill by the response organisation. NEBA takes into account the overall goal to reduce the potential impacts of the spilled pollutant, not necessarily to remove all of the pollutant from the environment. Sometimes complete removal or clean-up of all the pollutant can do more long-term harm to the environment than leaving it in place for nature to weather and degrade it.

Oil Spills

Once spilled oil reaches the sea, currents and weather determine slick movement and oil fate in the environment in spite of our best response efforts. Mariners and experienced fishermen understand the power of the sea. Responders do their best to conduct a successful response in the marine environment, whether the mission is transporting people and goods, harvesting from the sea, or responding to a spill.

However, man cannot always prevail over Mother Nature. Removing spilled oil may be the ultimate goal. However, years of spill response experience show that mechanical equipment, in most cases, is only able to recover and remove 20% of the spilled oil volume under good conditions; often mechanical recovery and removal is far less than that. There only are few incidents usually involving heavy but floating oil where mechanical oil recovery exceeded 20% of the original spill volume. It is important to note that as oil weathers and becomes emulsified (water mixed into the oil by wind and wave action), its volume can actually expand due to the addition of water into the oil slick which remains.

Categories of Response Options

The main categories of options that responders use to manage oil spills at sea and on-shore include:

- **Source Control** - Controlling the source to prevent additional spillage beyond the initial amount is an agreed priority during response, second only to protecting human life. Vessel operators and salvage masters, operations personnel at onshore and offshore facilities are knowledgeable about the best ways to stop or control a spill source.
- **Surveillance and monitoring** - Monitoring the location of spilled oil at sea and its likely path of movement is a standard response practice. If spilled oil will move away from shore, poses no imminent threat, and active response is unfeasible, then monitoring slick movement at sea may be the primary response option. Monitoring oil stranded on shore has also been employed when the conditions warrant. Sampling the environment – water column and organisms – to determine the extent and level of contamination is another form of monitoring. Monitoring natural recovery for possible future action is also included in this category of response option.
- **Mechanical equipment** - Specialised mechanical equipment is used to contain (boom), recover, and remove oil (skimmers) from the environment at sea. Mechanical equipment, ranging from front-end loaders to shovels and rakes, is also used to remove oil on shore. On some incidents, mechanical on-water recovery and shoreline clean-up equipment can be modified for incident-specific conditions. Generally mechanical response options can be used with no special approval.
- **Oil spill treatment products (OSTP)** - The use of oil spill treatment products like dispersants is often limited by government authorities. Government policies regarding such limitations vary among countries. In the UK, the Marine Management Organisation is responsible for making decisions on the use of oil spill treatment products.

- **Controlled burns in-situ** - Controlled burning of oil in-situ is an option at sea and on shore when conditions are appropriate and their use is approved.

To assist spill response decision makers in evaluating various response technologies beyond the standard mechanical response equipment, including various OSTPs, US government agencies and industry use the consensus document "Selection Guide for Oil Spill Response Countermeasures". It can be downloaded at: **http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/response-tools/selection-guide-oil-spill-response-countermeasures**

The UK MMO guidance documents on dispersant use can be viewed from: http://www.marinemanagement.org.uk/protecting/pollution/documents/contingency_plan_external.pdf.

Encounter Rates of Response Options

Oil cannot be managed – contained, recovered, burned or dispersed – unless the oil can be accessed by response equipment. Therefore, a key aspect to consider when evaluating response options is the encounter rate of various types of response equipment. The *encounter rate* is the area of oil an individual piece of equipment can encounter per day. It is calculated by multiplying the swath width the equipment by the speed of the equipment by the time of operation in a day (Figure 3.6). Encounter rate describes the capability of mechanical equipment to recover and remove oil and the concept also is applicable to skimming systems, dispersants, and in-situ burning.

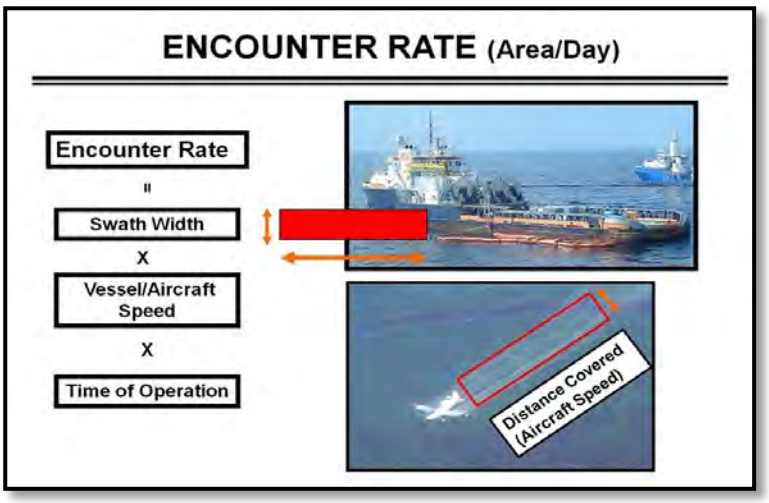

Figure 3.6. *Encounter Rate Calculation. Source: C. Huber, 2011.*

Figure 3.7. *Photo example of boom containment encounter rate. Source, M. Austin.*

It is evident from the example in Figure 3.7 that removing oil from the sea surface is not a rapid process. For this reason, options with larger encounter rates are often used to control the movement of large offshore spills. The aerial application of dispersants offers the largest encounter rate and is a tool with a wide swath that can help prevent oil from reaching environmentally and economically important coastal areas and shorelines.

One of the reasons aerial dispersants are considered a useful response option is because their encounter rate allows responders to quickly attack larger, persistent-oil slicks ultimately reducing the threat of surface oiling to sensitive organisms (e.g., waterfowl) and shoreline environments (e.g., marsh habitat). Conversely, the application of dispersants mixes the oil into the water column which could expose organisms to the small dispersed oil droplets. For this reason, dispersants are generally used in open waters, rather than nearshore, shallow waters.

Responders and decision-makers must rapidly assess a spill situation, and evaluate which response option or options will yield a net environmental benefit relative to the oil remaining in the environment. The question responders have to answer from the initial spill until the end of response is: What response options should or should not be utilised that will result in the best overall outcome?

Shoreline Clean-up Considerations

Since local authorities have responsibilities for shoreline clean-up, brief mention of this topic is warranted. Each situation is different but there is extensive experience and robust scientific knowledge for making technical decisions about oiling on various types of shorelines. The Shoreline Clean-up Assessment Technique (SCAT) is a widely-used approach to systematically survey an affected shoreline after an oil spill; a SCAT manual has been developed for the UK.

The UK SCAT manual is available from: http://www.dft.gov.uk/mca/corp119ext.pdf.

As part of oil spill response, SCAT teams survey the area affected by the spill to provide rapid accurate geo-referenced documentation of shoreline oiling conditions. This information is used to develop real-time decisions and to expedite shoreline treatment planning and response operations. A SCAT programme includes field assessment surveys, data management, and data application components as part of the spill management organisation. The field survey teams use specific and standard terminology to describe and define shoreline oiling conditions. The SCAT process itself, however, is flexible, and the assessment activities are designed to match the unique spill conditions. SCAT teams are asked to provide recommendations on appropriate clean-up methods and to define constraints or limitations on the application of the clean-up techniques so that the treatment operations do not inflict additional damage to the shoreline.

It is reasonable for local authorities to consider using community engagement as a way to provide input to SCAT teams on the shorelines, both during pre-incident planning and during a response, especially when extensive privately-owned shorelines have been oiled.

Hazardous and Noxious Substance Spills (HNS)

The source of spills of HNS can be on-shore facilities and ships which carry them in bulk or smaller quantities. HNS are transported in various quantities and packaging according to international regulations. There are hundreds of HNS transported in bulk (in chemical tankers, gas carriers and bulk carriers) and many thousands of HNS transported in packaged form (typically in boxes and drums within containers on container vessels. For HNS incidents, concern for human health is paramount. This means that first responders from the local area are often the technical specialists called in to advise and assist.

For vessel incidents involving HNS, response options depend largely on whether the substance is a gas, evaporator, dissolver, floater, or sinker. For gases and substances that evaporate or dissolve quickly, monitoring may be the only form of response. Recovery may be possible for some floaters and sinkers.

The International Convention on Oil Pollution Preparedness, Response and Co-operation-HNS Protocol defines HNS as "any substance other than oil that, if introduced into the marine environment, is likely to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea."

CAMEO is available for download online at http://response.restoration.noaa.gov/cameo. The CAMEO software suite is a system of software applications used widely to plan for and respond to chemical emergencies. It integrates a chemical database and a method to manage the data, an air dispersion model, and a mapping capability. CAMEO Chemicals is a database of thousands of hazardous chemical datasheets that emergency responders and planners can search using a name, identification number, or other search criteria to find a particular chemical of interest. The software provides response recommendations and predicts possible hazards, such as explosions or chemical fires. Datasheets for each chemical provide critical response information, including physical properties, health hazards, information about air and water hazards, and recommendations for fire fighting, first aid, and spill response.

There are thousands of HNS which are shipped by sea in bulk and packages. Their shipping labels use various ways to identify them rather than the actual name of the chemical substances. Rapid action by fire fighters, police, and other emergency response personnel can be severely hampered by difficulty in relating their shipping number to the actual chemical name, and the lack of accurate information on the substance spilled and safe response actions. Computer-Aided Management of Emergency Operations (CAMEO) was developed in the US National Oceanic and Atmospheric Administration Office of Response and Restoration (NOAA) for first responders and front-line chemical emergency planners.

Additional good sources of information about HNS and HNS spills:

- ITOPF Technical Information Paper #17- Response to Marine Chemical Incidents http://www.itopf.com/information-services/publications/documents/TIP17ResponsetoMarineChemicalIncidents.pdf.
- CEDRE has prepared a series of chemical response guides which can be reviewed at: http://www.cedre.fr/en/publication/chemical-guide.php
- Chemdata® from NCEC (AEA Technology) is an interactive database of over 36,000 substances and more than 116,000 different chemical names, including pure and trade-name chemicals. http://www.the-ncec.com/chemdata/

The properties, hazards, and extent of contamination from HNS spills may be localised and result in a shorter duration of response than that of a response to persistent oil that requires extensive shoreline contamination and clean-up (ITOPF, 2012c). Shoreline clean-up of the 2010 Deepwater Horizon oil spill in the Gulf of Mexico, for example is still underway. However, if an HNS incident involves recovering many containers or if the ship has to be salvaged, it is critical that responders assess the potential hazards of each HNS on board and determine how best to mitigate and/or remove the threat to the environment and human health. This can be quite complicated and time consuming. For example, active response to clean up the oil spill and HNS container contents from the *M/V Rena* incident, described in the text box, lasted over a year.

M/V *Rena* – Oil Spill and HNS Incident

Some incidents can lead to spills of both oil and HNS. Early in the morning of 5 October 2011, the *M/V* Rena, a 21-year-old 236 metre Liberian-flagged container vessel en route from Napier to Tauranga, struck Astrolabe Reef off Tauranga and grounded. Its bow section was wedged on the reef, with its stern section afloat. Two of its cargo holds flooded and several breaches were identified in the hull. Eighty-eight containers were lost over board as *Rena* developed a list of about 20 degrees. Approximately 350 tonnes of oil escaped from *Rena*, some of it washing up at various points along the Bay of Plenty coastline.

The condition of the vessel gradually deteriorated during the time it was grounded on the reef, with more accelerated deterioration during stormy weather which resulted in continuing damage to the hull and loss of more containers over the side. An additional 5–10 tonnes of oil was lost from the vessel overnight on 22–23 October. On 8 January 2012, an estimated 200–300 of the approximately 830 containers remaining on board *Rena* were lost overboard. Some of the containers and their dispersed contents washed up on nearby shores, others have been located at sea for later recovery, and about 30 are unaccounted for. Nearby communities were very concerned and wanted to help.

Of the 1,368 containers on board *Rena* at time of grounding, 32 containers held dangerous goods:

- HNS: One container of dangerous goods containing Alkylsuphonic liquid (UN2586), which is water soluble, was lost from the ship during the storm on 11 October.
- HNS: Six containers that were below deck in the sunken rear section of Rena contained ferrosilicon, potassium nitrate and potassium superoxide; the other recently declared 21 containers hold cryolite.
- Salvage actvities of the wreck and debris removal continued for over a year.

Figure 3.8. *M/V Rena after loss coming hard aground on the Astrolabe Reef in the Bay of Plenty, New Zealand. Source: Maritime New Zealand, 2011.*

SPILL IMPACTS

Local authorities, communities and other local stakeholders need to be aware of a few key concepts when considering the complex topic of spill impacts, keeping in mind that there is no easy, concise way to discuss all that is important to know. The exact nature and duration of any impacts from a spill depend on such factors as the type and amount of pollutant and its behaviour once spilled; the physical characteristics of the affected area; weather conditions and season; the type and effectiveness of the clean-up response; the biological and economic characteristics of the area and their sensitivity to oil pollution.

Typical environmental effects of spilled oil on marine organisms range across a spectrum from toxicity (especially for light oils and products) to smothering (heavier oils and weathered residues). Toxicity from exposure to a hazard varies by organism and organism life stage, and depends upon multiple factors. The presence of toxic components does not always cause mortality and spill studies have shown that the environment also has the capacity for resilience and recovery from oil spill impacts.[4] Habitats which are exposed to natural high wave energy, for example, recovery more quickly from oil damage than sheltered areas.

Under certain conditions, i.e., if fish or shellfish taken for human consumption is exposed to and is tainted by spilled oil, spill impacts on seafood safety require special consideration and testing.

Learn more about spill effects, seafood safety, and monitoring for spill effects in ITOPF's Technical Information Papers (TIPs) 11, 13, and 14 available at: http://www.itopf.com/information-services/publications/technical-reports/

Key concepts that should guide thinking about how oil and HNS spills can impact the environment and public health are presented below.

- A hazard is something, such as the chemical and physical properties of a particular substance that can cause adverse effects. For example: concentrated sulphuric acid is a hazardous chemical because it is very corrosive and reactive. As shown in Figure 3.9, lighter, non-persistent oils can be more hazardous (toxic) to marine organisms than persistent oils.
- Risk is the probability or chance that the hazard posed by the chemical will lead to injury. For example, concentrated sulphuric acid is a hazardous chemical, but if it is adequately contained and is handled with a full understanding of the hazards it presents, the risk of exposure to the hazard and resultant impact may be small.
- To cause harm to an organism (person, animal, or plant), a hazard first must enter the organism. Merely being exposed will not cause harm if the hazard does not actually enter the organism. Primary ways that a hazard can enter an organism are: ingestion (digestion), inhalation (respiratory), dermal contact and absorption (skin). If an organism is not exposed, if there is no pathway for exposure, it cannot be harmed or impacted. This is important in relation to the concept of patchiness which was discussed earlier in this section.
- Dose is the specific amount of a chemical that enters the organism when it is exposed to a hazard. The amount of damage or impact (response) caused by a chemical is influenced by

[4] : http://www.itopf.com/marine-spills/effects/environmental-impact/

on the dose, or amount entering the organism. This relationship is called dose/response. It is the dose of a chemical that can result in damage. A small dose may cause no harm. Estimating harmful doses requires considering exposure concentration, frequency and duration, and properties of the toxicant.

- Toxicity is defined as the inherent potential or capacity of a material to cause adverse effects in a living organism. All substances have the potential to result in toxic effects, but this is directly related to concentration and length of exposure. That is, everything can be toxic to an organism at harmful doses. Conversely, not every dose is harmful and dose/response varies with the age and size of the organism. For example, the same dose of alcohol consumed by ingestion can have very different responses in a male or female adult, or a child.[5]
- Toxic effects are a function of the frequency and duration of exposure to the chemical and the concentration of the chemical. Toxic effects can be produced by short-term (acute) or long-term (chronic) exposure. **Acute toxicity** refers to a high toxicant dose over a short period of time, whereas, **chronic toxicity** refers to small doses over a long period of time. In the case of oil spills, most negative effects from short-term exposure may be observed early in the spill.
- A complete **exposure pathway can only occur when all** of the following five elements are present (ATSDR, 2005). This relates to the concept of patchiness discussed earlier in this section.
    1. A source of contamination, for example spilled oil or HNS;
    2. Media for the contaminant to travel, such as surface water, air, subsurface water, sediment, and biota (animal, e.g., seafood, and plant life);
    3. A point of exposure, or a place where organisms actually come into contact with the contaminated material;
    4. A route of exposure, or how contaminants enter or contact the body (i.e. ingestion, inhalation, dermal contact, and dermal absorption); and
    5. A receptor population or those individuals (people or marine life) who are exposed or potentially exposed to the contaminants.
- Toxicity is relative. Levels of a toxic substance that are practically non-toxic to one species, or life stage, may be much more toxic to others. Therefore, there are various ways to define toxicity and a combination of tests that can be undertaken to measure toxicity levels for a given substance.
- Toxicity tests are conducted in the laboratory to help predict the potential adverse effects of chemicals on humans and other organisms. When measuring toxicity under laboratory conditions, the goal is to estimate what concentrations of a chemical cause a specific effect over a specific period of time. These may be either short-term or long-term tests. All quantitative aquatic toxicity assessments are based on the dose-response concept. As the dose (exposure) to a toxic chemical increases, so does the response (mortality is the usual measure in most tests). In the UK, toxicity testing for substances spilt into the marine environment is guided by the following document, according to best available practices

[5] Exposure pathway http://www.atsdr.cdc.gov/training/toxmanual/pdf/module-2.pdf

(BAP):
http://www.marinemanagement.org.uk/protecting/pollution/documents/tech102.pdf.

- Toxicity is typically expressed in parts per million [ppm] or mg/L; and parts per billion [ppb]). For example, if you put one teaspoon of salt in two gallons of water the resulting salt concentration would be approximately 1,000 ppm and it would not even taste salty. When comparing chemicals side-by-side, remember that the more chemical it takes to cause an acute effect (death), the less toxic the chemical.
- One of the more commonly used measures of toxicity is the LD50. The LD50 is the **lethal dose** for 50 percent of the organisms tested in a laboratory study of a poison. It is usually expressed in milligrams of chemical per kilogram of body weight (mg/kg). Another measure is LC50. LC50 is the **concentration** of a chemical lethal to 50 percent of organisms in a laboratory study.
- A chemical with a small LD50 is very highly toxic. A chemical with a large LD50 (1,000 to 5,000 ppm or mg/kg) is practically non-toxic. The US EPA established the scale in Fig. 3.9 for interpreting laboratory-generated aquatic toxicity information using lethal concentration (LC_{50}) values (mg/L = ppm).
- Laboratory aquatic toxicity tests are not representative of the likely exposures incurred by organisms in the environment that are affected by spilled oil. Natural weathering processes like spreading, evaporation, and dilution occur and limit the potential exposure duration and concentration. A laboratory test only allows a comparison between the aquatic toxicity of various chemicals and is not an evaluation of potential impacts to organisms as they exist in the environment.

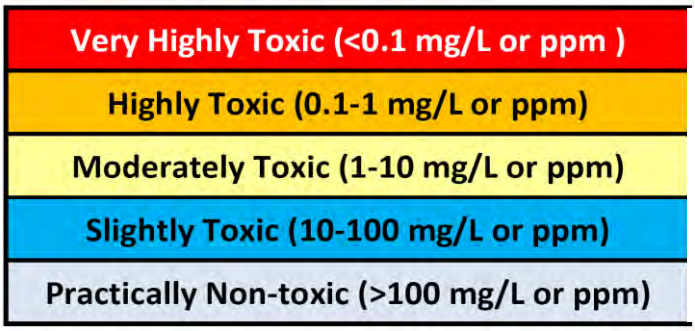

Figure 3.9. *US EPA's LC50 aquatic toxicity scale for laboratory-generated aquatic toxicity data. Source: EPA online, 2012.*

Community stakeholders can learn more about the complex topic of toxicology in the US Toxicology for Communities Trainers' Manual, US Agency for Toxic Substances and Diseases Registry (ATSDR)

http://www.atsdr.cdc.gov/training/toxmanual/

This section was intended to highlight important concepts and provide easy-to-read sources of information about preparing for and responding to oil and HNS spills. Having some practical understanding of the technical aspects of spill response is essential and a pre-requisite to effective stakeholder engagement. Building on the foundation provided in Sections 1, 2, and 3, the next section

discusses the international and UK institutional and regulatory framework which governs preparedness and response to oil and HNS spills.

4. Regulatory Framework for Oil and HNS Spills

Summary Points

- Many laws, agreements, and regulations require oil and HNS spill preparedness and response, including organisational roles, responsibilities, resources, and processes.
- Over the last several decades, the United Nation's International Maritime Organisation (IMO) has passed treaties and regulations to create a global framework for preventing, preparing for, and responding to marine pollution. This work has incorporated the input from hundreds of countries, non-governmental organisations (NGOs), and international intergovernmental organisations.
- Some regulations set explicit requirements for plans and training; others provide guidance for or set limitations on ways to manage pollutants in the marine and coastal environment and mitigate environmental impacts.
- It is important to align and integrate the responsibilities of local emergency authorities with spill authorities when both the Civil Contingencies Act of 2004 (CCA) and National Contingency Plan (NCP) are activated. The CCA recognises the front-line responsibilities of local first responders (e.g., fire fighters and police) and outlines ways to integrate their response with other responders at the regional, national, and international levels.
- The interrelationship of response organisations for marine pollution with civil contingency organisations is evolving. Many countries have, or are now passing laws and regulations on emergency response by local authorities in reaction to recent disasters caused by severe weather or terrorism, such as the CCA.
- During major incidents, marine pollution organisational frameworks tend to be "*top down*" (especially for major incidents, leadership and resources are external to communities); however civil contingency response regulations tend to be "*bottom up*" (leadership and resources at the local level). These are different approaches and implementing both simultaneously can be a challenge.
- Funding of certain forms of engagement related to spill preparedness and response can be paid by government, insurance, and the polluter. Some community engagement can be funded during preparedness and response by government under the CCA. Additional funding for community and academic stakeholder input during response may be obtained from the polluter or government agencies on a case-by-case and agreed basis.
- Socio-economic impacts caused by spills are addressed through insurance regimes and compensation agreements which provide the means for affected individuals and businesses in a community to submit claims for damages and losses. The timely payment of claims supports community resilience, recovery, and restoration from spill impacts.

This section provides an overview and highlights of key regulatory systems which are relevant to coastal pollution and community engagement. Engagement, therefore, needs to occur within this framework to be practical and relevant.

INTERNATIONAL AND EUROPEAN REGULATORY CONTEXT

Spills of oil and HNS which impact the marine environment often originate from incidents involving ships which transport these products in substantial volumes as cargo, and HNS is often transported in bulk or in smaller amounts when shipped in packages. Oil that fuels ships can also be a spill source if the fuel tank is damaged in a vessel incident.

International and regional governmental organisations develop agreements or conventions that provide a global institutional system to address marine oil and HNS incidents, calling for a preventive approach with associated requirements for planning and readiness. Signatory countries to these agreements and conventions require and enforce planning and readiness in accordance with the international agreements. Since planning and preparedness often encompass issues broader than a single country, multi-national and regional agreements also influence spill response decision-making and capabilities which in turn can affect communities and how local authorities might engage with them.

The International Maritime Organisation (IMO)

The primary international entity for countries, known as States, to address marine pollution globally is the United Nation's International Maritime Organisation (IMO), which supports a formal process for engagement with and input from NGOs and intergovernmental organisations. The IMO was established by Convention in 1948 and is charged with improving the safety and security of international shipping and to prevent marine pollution from ships from both oil and HNS. Its objective is reflected in the slogan: *Safe, secure, and efficient shipping on clean oceans*.

It is also involved in legal matters, including liability and compensation for damage, such as pollution caused by ships, and the facilitation of international maritime traffic.

The IMO currently has 170 Member States and three Associate Members. Many NGOs and intergovernmental organisations like the European Commission are given consultative status to provide their input into the global regulations, codes and agreements.

For Additional Information on IMO Member States, IGO's and NGOs visit the IMO website: http://www.imo.org/About/Membership/Pages/Default.aspx

IMO Treaties and Regulations Pertaining to Oil and HNS

- **SOLAS Convention –** the International Convention for Safety of Life at Sea (SOLAS) adopted in 1974 is an international maritime safety treaty. The SOLAS Convention in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships.
- **UNCLOS –** the United Nations Convention on the Law of the Sea (UNCLOS) was adopted in 1982 and defines the rights and responsibilities of nations in their use of the world's oceans, defines boundaries of the sea, and establishes management guidelines for businesses, the environment, and the management of marine natural resources.

- **MARPOL 73/78** - International Convention for the Prevention of Pollution from Ships adopted in 1973 as modified by the Protocol in 1978 (MARPOL 73/78) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.
- **OPRC Convention** - the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) is an overarching international agreement dealing with marine pollution. It was adopted by the IMO in November 1990 and became international law in May 1995. The UK is signatory to the OPRC. The Convention is designed to:
    - Help governments prepare for and respond to major oil pollution incidents;
    - Facilitate international co-operation and mutual assistance relative to a major oil pollution incident; and
    - Encourage States to develop and maintain an adequate capability to deal with oil pollution emergencies.
- **HNS Protocol** - the Protocol on Preparedness, Response and Co-operation to pollution Incidents by Hazardous and Noxious Substances (HNS Protocol) adopted in 2000 follows the principles of the OPRC Convention and ensures that ships carrying HNS[6] are covered by preparedness and response regimes similar to those already in existence for oil incidents. The UK has not yet become a signatory to the HNS Protocol.

For Additional Information on IMO conventions visit the IMO website:
http://www.imo.org/About/Conventions/ListOfConventions/Pages/Default.aspx

European Union[7] (EU)

The EU has developed a broad framework to address issues of common interest including pollution of the marine environment and response to disasters. The EU framework for cooperation among countries in the field of accidental or deliberate marine pollution intends to:

- Supplement Member States' efforts at national, regional and local level to protect the marine environment, human health, and coastlines against the risks of accidental or deliberate pollution at sea;
- Reinforce cooperation and mutual assistance between Member States in this field, with a view to providing compensation for damages in accordance with the 'polluter pays' principle; and
- Improve the Member States' capacity to intervene in the event of accidental spills of harmful substances at sea.

[6] For the purposes of the HNS Protocol, a Hazardous and Noxious Substance is defined as "*any substance other than oil which, if introduced into the marine environment is likely to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.*"

[7] http://ec.europa.eu/echo/civil_protection/civil/marin/mp07_en_international.htm

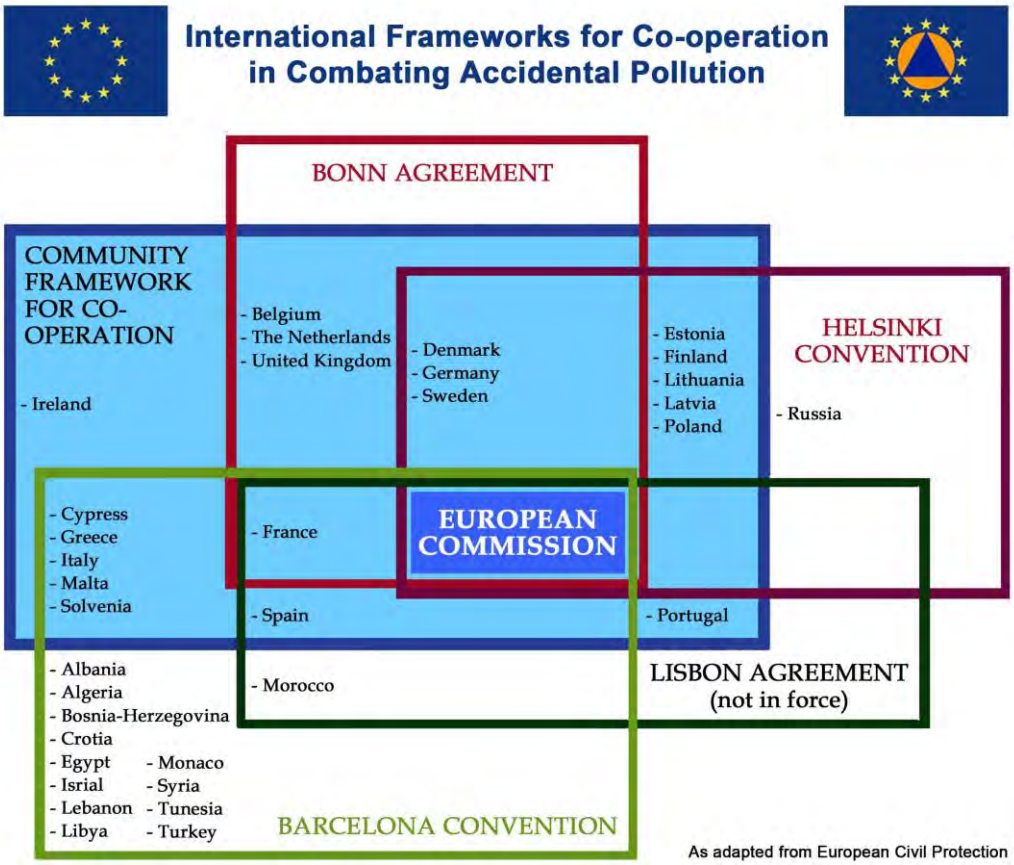

Figure 4.1. *International cooperation for combatting marine pollution. Source: European Civil Protection.*

Figure 4.1 illustrates the importance of the EU's co-ordinating role and highlights its participation in the regional agreements of Member States, States not members of the EU, and the European Commission, showing that all major seas in the EU are covered by regional agreements.

EU Regional Agreements related to marine pollution are:

- **Helsinki Convention** - the Convention of 1974 and 1992 on the protection of the marine environment of the Baltic Sea area
- **Barcelona Convention** – the Convention of 1976 for the protection of the Mediterranean Sea against pollution
- **Bonn Agreement** – the Agreement of 1983 for cooperation in dealing with pollution of the North Sea by oil and other harmful substances
- **Lisbon Agreement** - the cooperation Agreement signed in 1990 for the protection of the coasts and waters of the North-East Atlantic against pollution, however this last Agreement is not yet in force.

The Community Information System (CIS) is the EU's framework for cooperation and exchange of data on the preparedness for and response to marine pollution.

European Maritime Safety Agency (EMSA)

In 2002, the EU created the European Maritime Safety Agency (EMSA) through Regulation No. 1406/2002 and subsequently amended by Regulation No. 724/2004. EMSA's mission is to reduce the risk of maritime accidents, marine pollution from ships, and the loss of human life at sea. EMSA is tasked with providing resources and other means to Member States to assist marine pollution response.

EU Civil Protection Mechanism

In addition, the EU has developed activities to support Member States which are affected by disasters, known as the EU Civil Protection Mechanism.[8] Very large pollution incidents, and/or those requiring resources and assistance beyond in-country capabilities, can activate the Community Mechanism for disaster assistance.

The main role of the EU Civil Protection Mechanism is to facilitate co-operation in civil protection assistance interventions in the event of major emergencies which may require urgent response actions. This applies also to situations where there may be an imminent threat of such major emergencies. The main role of the Mechanism is to facilitate co-operation in civil protection assistance interventions in the event of major emergencies which may require urgent response actions.

UK Regulatory Context

Two principal documents frame preparedness and response to oil and HNS spills in the UK. They are the National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (NCP) and the Civil Contingencies Act of 2004 (CCA).

National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (NCP)

As a Party to the UNCLOS and OPRC, the UK developed the NCP to protect and preserve the marine environment. The NCP has been the UK's primary regulation for oil spill response. It addresses spills which originate at sea (from shipping or offshore installations) rather than spills which originate from on shore sources (e.g., oil storage facilities or chemical plants).

The purpose of the NCP is to ensure that there is a timely, measured, and effective response to incidents and to assure the use of national assets to respond to a marine pollution incident to protect the overriding public interest. The NCP addresses marine pollution by oil or other hazardous substances, that is, HNS. After saving human life, the key purpose of responding to a maritime incident is to protect human health, and the marine and terrestrial environment.

The NCP is updated every five years. The current plan from 2006 is under revision and will incorporate consideration of the CCA, among others changes.[9] The Maritime and Coastguard Agency (MCA), an executive agency of the Department for Transportation (DfT), develops and maintains this plan.

[8] http://ec.europa.eu/echo/policies/disaster_response/mechanism_en.htm.

[9] http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-dops_cp_environmental-counter-pollution_and_response/mcga2007-ncp.htm

The NCP defines the following pollution incident categories, the resources needed for response, and the response organisation:

- **Tier 1** – local (within the capability of one local authority or harbour authority);
- **Tier 2** – Regional (beyond the capability of one local authority); and
- **Tier 3** – National (requires national and/or international resources).

These tiers provide the structure for defining roles and responsibilities in a situation-appropriate response organisation which can consist of representatives from many levels of government and agencies.

A key component of the NCP is the establishment of the SOSREP who is a single individual with the assigned authority and statutory powers to give directions and take other necessary action to minimise pollution or the threat of pollution from a ship or offshore installation in UK waters which is liable to:

- Create hazards to human health;
- Harm living resources and marine life;
- Damage amenities; or
- Interfere with other legitimate uses of the sea.

The NCP describes in detail the roles and responsibilities for oil and HNS responses in its Appendices.[10] For situations which result in marine pollution originating from a ship or offshore installation, in spite of salvage and other intervention actions, Appendices A, H, I, J, and K of the NCP describe the response activities and organisations with which local authorities may interface, especially if and when the pollutant reaches shore. As also noted in the NCP, in the event of a shore-based spill affecting UK waters, the MCA supports the environmental regulator (e.g., Environment Agency in Wales) with appropriate resources.

Shoreline clean-up will be the responsibility of the local authority**,** unless a specialist contractor is appointed by the ship-owner/company. Operations will be overseen by the Shoreline Response Centre (SRC) and the Strategic Co-ordinating Group (SCG).

The NCP recommends that the coastal pollution response plan of each Local Authority should contain a provision for setting up a SRC. The responsibilities for the clean-up of pollution, whatever the source, are summarised in Table 4.1. If the threat of pollution to the shoreline exceeds the capability of the most affected local authority, and MCA initiates a national response, then the local authority(s) sets up a SRC. A SRC should contain representatives of all the local authority services that may need to participate in the clean-up operation and representatives of all local and port authorities that may become involved.

[10] The current version of the UK NCP and its appendices is available from: http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-dops_cp_environmental-counter-pollution_and_response/mcga2007-ncp.htm.

Table 4.1. Responsibility for clean-up as identified in the NCP Consultation Document[11]	
Location of Pollution	**Proposed Responsibility for Clean-up**
On the water, jetties, wharves, structures, beach or shoreline owned by the harbour authority within the port/harbour area	Harbour Authority
Shoreline (including land exposed by falling tide)	Local authority
Jetties, wharves, structures, beach or shoreline which is privately owned	Owner of the property / land
All other areas at sea (inside the UK Pollution Control Zone)	MCA

Civil Contingencies Act of 2004 (CCA)

The CCA was passed in 2004 to provide for a single framework to address all types of civil contingencies or emergencies and the consequences of emergencies, which are defined as any event that threatens serious damage to human welfare, the environment, or the security of the UK or part of it. Under this Act, oil and HNS spills which threaten serious damage to the environment or human health and welfare may be considered an emergency.

The CCA requires local and regional authorities (including councils and the emergency services) to draw up detailed plans for dealing with a catastrophe and to create a new tier of regional civil protection organisations, described as "resilience bodies", to co-ordinate the response by local and national government. The CCA focuses on local arrangements for civil protection, establishing a statutory framework of roles and responsibilities for local responders as the foundation of emergency response and preparedness.

MCA meets the requirements of its planning duty under the CCA by maintaining a set of three plans:

- The NCP,
- The Business Continuity Plan, and
- Major Incident Plans (primarily search and rescue).

Under the CCA…

An emergency is defined as:

- An event or situation which threatens serious damage to human welfare in a place in the United Kingdom,
- An event or situation which threatens serious damage to the environment of a place in the United Kingdom, or
- War, or terrorism, which threatens serious damage to the security of the United Kingdom.

[11] The 2012 NCP Consultation Document is available from: http://www.dft.gov.uk/mca/mcga07-home/emergencyresponse/mcga-dops_cp_environmental-counter-pollution_and_response/cp-con-ncp2012.htm.

The CCA identifies triggers which require the assets beyond the scope of normal operations and require a special deployment, such as a Tier 2 or 3 oil spill which would impact more than one local area, or a flood that exposes more than one local area to HNS from shore side facilities, e.g., floating tanks of HNS. A situation like the *M/V Rena* in New Zealand, where containers fell from the ship and floated ashore in a region, would also involve the CCA if more than a single area was affected and if human welfare and/or the environment were threatened by the incident.

The CCA views local responders as the building block of resilience in the UK. Local authorities in Wales have general powers to act with respect to emergencies or disasters under the Local Government Act 1972. This authority includes incurring expenditures for taking action with respect to emergencies or disasters.

The CCA identifies the roles and responsibilities of responding organisations in the UK. There are two categories of responders: Category 1 responders are known as the core responders and include the first responder community; Category 2 responders are key cooperating responders that act in support of the Category 1 responders (e.g., utilities, transport, health authorities, etc.).

Table 4.2 provides examples of the Category 1 Responders as defined in the CAA and includes local authorities, emergency services, some NHS bodies and some government agencies. Some Category 1 responders will be involved in all oil and HNS spill responses.

Table 4.2. Category 1 Responders

Emergency Services • Maritime and Coastguard Agency • Police forces • British Transport Police • Fire authorities • Ambulance services	**Local Authorities** • All principal Local Authorities (i.e., metropolitan districts, shire counties, shire districts, shire unitaries) • Port Health Authorities
Government Agencies • Environment Agency • Scottish Environment Protection Agency	**Health Bodies** • Primary Care Trusts • Acute Trusts • Foundation Trusts • Local Health Boards (in Wales) • Any Welsh NHS Foundation Trust which provides public health services • Health Protection Agency

The CCA through its "*bottom up*" response organisation recognises that local areas are directly affected by natural and technological disasters, e.g., acts of terror, which impact them and also acknowledge the importance of community involvement to promote resilience. Most oil and HNS spills are not considered disasters but it is possible that they may be. The *Exxon Valdez* and Deepwater Horizon oil spills are considered environmental disasters by communities affected by them. The next section discusses the contributions of both the natural and social sciences to our broad understanding of oil and HNS spills and their potential to affect communities.

5. Research Rationale for Engagement

Summary Points

- The value of practitioner experience, natural and social science research and scientific studies is knowledge and understanding about oil and HNS pollutants, response options, the environment, people, health, impacts, and recovery from pollutant damage. Appropriately applying and integrating this specialised knowledge can improve preparedness, response, and recovery decisions.
- Research and studies have limitations. Scientific research and studies, whether they be conducted by academia, scientists from agencies or the private sector, usually focus on a narrow topic or question under specific conditions, which can limit their relevance to all spill situations. Social and natural scientists tend to be specialists (e.g., chemical, geological and biological oceanography; sociologists, psychologists, and economists) which usually prevents the integration of findings across multiple disciplines. Laboratory studies are limited in their ability to replicate real-world field conditions. Those with traditional knowledge may possess specific information about an area which researchers and responders lack, such as current anomalies or the spawning cycle of shellfish specific to an area.
- Spill preparedness and response practitioners, such as technical specialists and responder scientists, have valuable experience with pollutants in the field under different conditions and locations. In this regard, their knowledge offers realistic insights to think ahead and anticipate what could happen and how pollutant impacts might be mitigated under a variety of conditions. The International Oil Spill Conference (IOSC) has published papers peer-reviewed by spill response practitioners, scientists and technical specialists since 1969.
- Knowledge-based decision making about spills therefore can be broadly informed by applying and integrating the knowledge from spill practitioners (leaders, operation specialists, and scientists), findings of researchers, and traditional knowledge, e.g., fishermen and marine pilots who know about specific currents in an area.
- Disasters are complex social crisis situations which result in interrelated economic, social and psychological impacts on communities, organisations, families, and individuals. Researchers distinguish between natural (floods) and technological (human-caused, e.g., spills) disasters. Floods, terrorism, and oil spills are considered disaster agents.
- Disaster research literature also tells us that following major public emergencies, disasters and catastrophes, organisations evolve and new organisational structures emerge, especially in reaction to the impacts on the community and social consequences. Therefore, the response organisation needs be flexible enough to manage by feedback and allow the emergence of problem-solving *ad hoc* organisational elements.
- Technological disasters often lead to a corrosive social cycle of *warning, threat, impact, and blame* that can emerge and repeat itself across a wide variety of secondary disasters that follow in the wake of the original contaminating event. Affected communities consider the *Exxon Valdez* and Deepwater Horizon oil spills as technological disasters. The majority of oil and HNS spills are unlikely to become technological disasters.
- Communities that are dependent upon renewable resources, e.g., fishing (commercial, recreational or subsistence), are particularly vulnerable to oil spills and can suffer chronic

social and economic impacts which may become barriers to community resilience and recovery.

- Community resilience refers to the capacity of people to cope with a serious event that impacted them which they did not cause, and which is managed by outside entities like government, insurance, and experts. Participating in some way to improve the outcome of a serious event promotes community resilience.
- Research has shown that most lay people have the capacity to understand the important issues needed to make a well-informed decision about risks (e.g., those presented by oil and HNS spills), given time, effort, and careful explanation through risk communication.
- Risk communication requires two-way communication – listening for expressed perceptions, concerns, and questions about potential risks, and then developing information and processes to address those concerns and questions.
- Social media can be a risk communication tool and an opportunity to enhance resilience by enabling community participation.
- Stakeholder engagement, risk communication, social media, and volunteering conducted during preparedness and response activities are potential strategies to support community resilience and recovery.

DECADES OF SPILL SCIENCE

Many people would agree that the oil spill from the *Torrey Canyon* tanker off the south western coast of the UK on 18 March 1967 was the beginning of modern day spill response and widespread public and governmental awareness of environmental impacts resulting from marine oil pollution. When the *Torrey Canyon* ran aground, it spilled 119,000 tonnes of Kuwait crude oil which formed a slick over an area of 270 square miles, killing thousands of seabirds and polluting hundreds of miles of coastline around Cornwall and extending over to France. Many lessons were learned on that spill about what not to do, and lessons continue to be learned on every spill. The blowout of Union Oil's Platform A on January 28, 1969, 6 miles (10 km) from the US California coast was another early catalyst of attention on oil spills. Within a ten-day period, approximately 11,000 to 13,600 tonnes of crude oil spilled into the Santa Barbara Channel and onto the beaches of Southern California, fouling many miles of the coastline. The spill had a significant impact on marine life in the Santa Barbara Channel, killing thousands of sea birds, as well as marine animals such as dolphins, elephant seals, and sea lions. Reseach on post-spill impacts has been the focus of academic, government and industry scientists since these early major spills. Post-spill lessons and research has guided the response practices discussed in Section 3 and the development of a global regulatory framework, which was discussed in Section 4.

The international collection of practitioner knowledge about oil spill planning and response is contained in the Proceedings of the IOSC (International Oil Spill Conference), which began in 1969. The IOSC was begun to create a global colloquium for public, government, academia, industry, and response organisations to address all aspects of oil spills impacting the environment and to promote international sharing of best practices and lessons learned from oil spill incidents. The goal of the IOSC is to promote an international exchange of information and ideas dealing with spill prevention, planning, preparedness, response, restoration, protocols, education, research and development, and technology. The online IOSC Proceedings contains over 3000 peer-reviewed articles related to oil spill prevention, response, and restoration. Spanning over 40 years of oil pollution issues, IOSC papers can be accessed at http://ioscproceedings.org/.

Oil spills in cold and ice-affected waters offer particular challenges. Environment Canada began the Arctic and Marine Oilspill Program (AMOP) in March 1978 to improve the knowledge base and technology for combatting Arctic and marine oil spills. The AMOP Technical Seminar soon evolved into an international technical forum about preventing, assessing, containing, and cleaning up spills of hazardous materials in every type of environment. It also deals with solutions for remediating and rehabilitating contaminated site. The 36th AMOP Technical Seminar on Environmental Contamination and Response will be held in 2013. Proceedings of peer-reviewed papers are published for each AMOP conference.

Spill preparedness and response is strengthened by reviewing and applying relevant research findings of natural and social scientists. The environmental aspects of oil and HNS spills have been documented over the last several decades by spill specialists and natural scientists from the fields of geology, biology, chemistry, and oceanography, in IOSC and AMOP Proceedings, and scientific journals such as Environmental Science & Technology, Environmental Pollution, Environmental Toxicology and Chemistry, Marine Pollution Bulletin and recently the high-impact journals Science and Nature, among others.

From the social sciences, a substantial body of research also exists about the effects of disasters on communities, as well as communication with the public about risks, and community resilience.

Community concerns and questions need to be addressed by integrating inputs from several scientific disciplines. For example, the deceptively simple question, "*Is the seafood safe to eat?*" requries the input of multiple scientific disciplines and specialists to study the seafood in question and determine if is safe for human consumption. Marine biologists (finfish or invertebrates); analytical chemists; toxicologists; epidemiologists, and public health all have roles in sampling seafood, analysing data, interpretating data , and communicating the findings in ways that are meaningful and credible to the public and the scientific community.

To facilitate shared understanding for community engagement, this section presents some research findings which:

- Provide insight into spills in relation to disasters and community resilience;
- When and why people consider that community engagement is relevant to spill response and community resilience;
- Ways to improve external communications with the public and communities, e.g., strategic use of social media; and
- Some organisational implications for managing spill responses going forward.

This information is applied in Guidance Sheets 1, 6, 7, and 8.

SPILLS AND DISASTERS

Social science research findings suggest that beyond the business-related socioeconomic impacts, spills impact individual, family, and community resilience and recovery. Findings from this body of research show ways to improve perceptions and communications about spill response, impacts, and recovery

with the public at large as well as with specific communities.

Oil spill and spill response activities can result in human dimensions impacts, which encompass all impacts that are not ecological. (Webler et al., 2010). Researchers and government entities involved in disaster response view community resilience as a valuable capacity which promotes recovery from impacts. The spill response community may disagree with social scientists and emergency managers that spills have a place in conversations about disasters. However, there is a growing acknowledgment that social media has opened the door for public communication and participation in many recent emergency events, ranging from political unrest to wildfires to recent spills. In this way, community engagement is becoming a routine aspect of emergency response, including oil and HNS spills.

Disaster research literature also tells us that following disasters and catastrophes, organisations evolve and new organisational structures emerge, especially in reaction to the impacts on the community and social consequences. Given that private individuals are often the first to respond to a disaster (Tierney and Bruneau, 2007), and that formal organisations may experience unique limitations during a catastrophe in activating an expedited response, any multi-organisational structure needs to account for the presence of both new and not-previously-connected groups. Also, for the community, a disaster requires special mobilisation and organisation of external resources beyond those normally available to those authorities (modified from Kelman and Pooley, 2004).

Disaster research literature clarifies the differences between emergencies, disasters, and catastrophes (Tierney, 2009). The size or scale of the incident is just one of the features used to distinguish between the three (Table 5.1). Incidents like the *Exxon Valdez* and Deepwater Horizon oil spills exhibit many of the characteristics of all three: emergencies, disasters and catastrophes.

Table 5.1. Key ways in which emergencies, disasters, and catastrophes differ.

Characteristic	Emergencies	Disasters	Catastrophes
Impacts	Impacts localised	Impacts widespread, severe	Extremely large physical and social impacts
Geographic extent	Response mainly local	Response multi-jurisdictional, intergovernmental, but bottom-up	Response requires federal initiative, proactive mobilisation
Pre-incident planning	Standard operating procedures used	Disaster plans put into effect – but challenges remain	Massive challenges exceed those envisioned in pre-existing plans
Response resources	Vast majority of response resources are unaffected	Extensive damage to, disruption of, key emergency services	Emergency response system paralysed at local and even state levels
Public involvement	Public generally not involved in response	Public extensively involved in response	Public extensively involved in response, with long-term mass convergence
Recovery	No significant recovery challenges	Major recovery challenges	Cascading long-term effects, with massive recovery challenges

The characteristic in Table 5.1 - public involvement (in this case, those who do not work with oil and HNS spills) - warrants special mention. With regard to public involvement, the public typically is involved in spill response by indirect means – by obtaining information through the media and social media, or through socio-economic impacts, e.g., tourism or fishing. The public, including the affected community, seldom is involved directly in spill response – they are external to the response organisation and decision-making. There are two kinds of exceptions that include community involvement in the response through the use of:

- Volunteers, and
- Vessels of opportunity (VOO) for on-water oil containment and recovery.

Many volunteers assisted with beach clean-up during the 2011 M/V *Rena* incident in New Zealand's Bay of Plenty – refer to Guidance Sheet 9. A volunteer is an individual who is willing to contribute his/her time or services in order to achieve an objective, often beyond his/her everyday responsibilities and employment without receiving compensation, other than reasonable reimbursement or allowance for expenses actually incurred.

Vessel of opportunity refers to a vessel that is normally involved in activities other than spill response, e.g., fishing, but is hired to assist with oil containment and recovery. Unlike volunteers, VOO are compensated when they respond. VOOs have been engaged during large oil spills such as the *Exxon Valdez, Sea Empress, Prestige* and Deepwater Horizon in the US Gulf of Mexico (Figure 5.1 and 5.2). The references listed in the text box (next page) provide detailed background on considering such details for on-water recovery through fishing VOOs (Washington state in the US report) and beach clean-up (use of volunteers for the *Rena* response).

Whenever volunteers or personnel on VOO could be exposed to the pollutant, their health and safety needs to be carefully considered and planned. Like professional responders who may be in contact with pollutants, volunteers and VOO personnel must receive special training about the job they will perform and potential safety risks and they must wear personal protective equipment (PPE) appropriate for that job and the specific pollutant.

Figure 5.1. *Fishing boats - vessels of opportunity - rigged for oil containment using boom in Venice Louisiana, 2010.*

Figure 5.2. *A vessel of opportunity (fishing boat) deployed in oil for oil collection and recovery.*

For more information on volunteers and vessels of opportunity (VOO) refer to:

- **Volunteers and Oil Spills:** http://www.itopf.com/information-services/publications/papers/documents/IOSC11.pdf
- **Use of Volunteers – Guidelines for Oil Spills (US National Response Team)** http://www.nrt.org/production/NRT/NRTWeb.nsf/AllAttachmentsByTitle/SA-**1080NRT_Use_of_Volunteers_Guidelines_for_Oil_Spills_FINAL_signatures**_inserted_Version_28-Sept2012.pdf/$File/NRT_Use_of_Volunteers_Guidelines_for_Oil_Spills_FINAL_signatures_inserted_Version_28-Sept-2012.pdf?OpenElement
- Two papers specifically on VOO use during the Deepwater Horizon incident can be downloaded in the 2011 IOSC proceedings (search for VOO 2011) www.ioscproceedings.org .
- Report on the use of volunteers during the *M/V Rena* spill: http://www.boprc.govt.nz/sustainable-communities/rena-oil-spill-volunteer-hub/
- **Oil Spill Response Vessel Capabilities in the State of Washington: Use of Commercial Fishing and Other Vessels to Augment Oil Spill Response Capabilities.** View Fishing Vessel Study at: http://www.ecy.wa.gov/programs/spills/publications/publications.htm#technicalstudiesandreports

Types of Disasters

The term, disaster, refers to the consequences of the event on society. Theoretical literature defines the cause of the event as the disaster agent, something that leads to a disaster. Severe storms, earthquakes, and tsunamis are disaster agents that can lead to natural disasters.

Technological disasters result from human causes. People tend to perceive a technological disaster caused by terrorism incident or spill of oil and HNS as preventable. Following a technological disaster, there can be public anger and a tendency to blame those responsible, e.g., the polluter responsible for an oil or HNS spill. Disaster researchers have argued that the effects of technological disasters differ in nature from other types of hazardous events due to the uncertainty or ambiguity of harm which surrounds the event (Edelstein, 1988). Toxic contamination of the biophysical environment has direct social consequences in that both ecological and sociocultural systems are challenged (Picou, 2009).

Be open and proactive to taking steps to prevent emergence from becoming a hindrance to a response for major spill emergencies.

Emergent organisations are made necessary by: (1) the perception that problems crucial to certain groups or individuals are unresolved, and (2) the heightened necessity for organisational co-ordination during a crisis. Prior planning can preclude unnecessary emergence although, since plans cannot anticipate all problems, some emergence will always occur. Therefore, the response organisation must be flexible enough to manage by feedback and allow the emergence of problem-solving *ad hoc* organisational elements. The response organisation should be sensitive to external concerns, recognise the presence of emergent groups early, and provide ways to incorporate them into the process. This was the case with the *M/V Rena* incident. If the core activities of the response are perceived as unresponsive and failing to resolve the concerns of stakeholders, e.g., the affected communities, academia, and NGOs, as they were following the *M/T Exxon Valdez* and Deepwater Horizon oil spills, the phenomenon of emergence can significantly hinder or disrupt a response. (Wenger, D., 1992; Tierney et al., 1994; Walker et al., 1995).

DISASTERS AND COMMUNITY RESILIENCE

There is a close relationship between disasters and community resilience. Research has documented instances that when community members exhibited coping mechanisms through a set of adaptations and adjustments groups were able to endure disruptive events (Adger et al., 2005; Smit and Wandel, 2006). Building community resilience involves developing the *social capital* of a community. Social capital describes the benefits of social networks and is developed when people work together and they can act to help restore their community. Resilience is determined by the degree to which the social system is capable of organising itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures (Wilding, 2011).

Such community-based management is premised on disasters being experienced first by locals and first responders, who are generally locals. This aligns with the policy perspective that the primary solutions to community resilience are to raise community adaptive capacity, encourage local communities to fend for themselves, and apply decentralised governance (Cheong, 2012).

In countries like the UK, government at the national level works in partnership with local authorities to support community resilience including the use of local resources and knowledge in a way that complements the local emergency services. The UK CCA (refer to Section 4 for more information on the CCA and other regulatory requirements) recognises research findings and empowers local authorities to prepare for emergencies in their areas in part by developing plans that support community resilience. The UK Community Resilience Programme (2011) states that communities already involved in preparing for emergencies have some or all of the following features:

- Are aware of risks that may affect them (both nationally and locally) and their vulnerability to such risks. This helps motivate communities to personally take action to prepare for the consequences of emergencies.
- Develop partnerships within the community to complement the work of the local emergency responders and other organisations before, during, and after an emergency.
- Use existing skills, knowledge, and resources to prepare for and deal with the consequences of emergencies.

When a community is resilient, it will be able to recover more quickly from a disaster.

Researchers distinguish between inherent resilience and adaptive resilience (Rose, 2004) for communities.

- **Inherent resilience** refers to characteristics of different social units (households, businesses, communities, local economies) that serve as sources of strength when the social order is disrupted. This includes practices that natural resource-dependent residents deploy to cope with disruptions and that are retained in their collective memory, e.g., fishing in alternate locations.
- **Adaptive resilience** is manifested when a disaster event occurs, refers to the capacity of social units to overcome crisis-related problems through effort and ingenuity.

Formal organisations, e.g., government and industry, have standing responsibilities to prepare for oil spill response. The preparedness and response activities of these organisations help them develop a capacity for formal resilience.

Community engagement during preparedness helps build and strengthen inherent resilience. During response, engagement can promote adaptive resilience and resilient communities. Both inherent and adaptive resilience was evident in the networks that assembled large numbers of fishermen and tourism businesses into groups filing class-action law suits following the *M/T Alvenus* oil spill in 1983 and the Deepwater Horizon oil spill. Mobilisation of fishermen and tourism businesses through local, social networks exemplifies the adaptation of pre-existing mechanisms to an unanticipated disruption.

Class action liability claims are an example of 'emergent organisations' which were not-previously-connected groups but came together following the response. These kinds of groups often express themselves through media reports, social media, town hall meetings, and face-to-face interactions with community representatives along oiled shorelines. While it could be argued that this form of emergent group does not affect the response organisation, some responders might consider that these communications directly influence their own perceptions about the success of the response organisation's management of the incident.

Another study (Ritchie and Gill, 2008) evaluated the risk perceptions following the *M/T Selendang Ayu* oil spill Alaska in 2004 and found that it is important to clearly assess risks and help the community increase resilience to the multiple hazards, including spills.

Thomas Wilbanks (2008) defines resilient communities as those locales and regions that maintain four key elements that enable: (1) the ability to anticipate disruptive events, (2) the ability to take steps to reduce vulnerabilities from future events, (3) the capability to respond to them effectively, (4) the mechanisms to recover from them equitably and efficiently. Table 5.2, adapted from Colten et al. (2012) organises oil spill-related activities according to Wilbanks' (2008) four elements of resilience.

Table 5.2. Oil spill activities and elements of resilience				
	Risk Anticipation	**Reduce Vulnerability**	**Response**	**Recovery**
Formal Resilience: Government	• Contingency plans • Response organisation, e.g., NCP structure • Spill control organisations	• Close fisheries • Monitor seafood quality	• Oversight of response • Biological analysis • Post-spill legislation • Alternate employment programs	• Post-spill legislation • Compensation program; e.g., natural resource damage assessment
Formal Resilience: Corporate (Polluter)	• Spill control organisations • Blowout preventers	• Regulatory compliance • Contingency plans	• Cap well, skimming, burning, boom, dispersant, beach clean-up	• Marketing to promote seafood and tourism in an affected area
Inherent and Adaptive Resilience: Community/ Family	Participation in development of community emergency plans	Community liaison representatives and community health workers	• Volunteer • Family aid • Fish elsewhere • Personal economic diversification • Relocate	• Participate in restoration process, e.g., input to setting priorities • Law suits • Unemployment compensation • Peer-listening (Picou)

COMMUNITY ENGAGEMENT AND COMMUNICATIONS

The public, and especially communities in the vicinity of oil and HNS spills, care about potential environmental, health and safety risks. The community members whose livelihood is dependent on the marine environment, i.e., fishing, aquaculture, and beach tourism, can be directly impacted by spills. Other businesses and individuals may also be impacted, such as a utility which draws water for cooling or residents whose home is adjacent to spilled oil or HNS. Indirect economic impacts can negatively multiply, when tourists and other consumers spend less in an impacted area as a result of risk perceptions, which may not be supported by research findings and other knowledge.

Assessments of human dimensions and vulnerabilities can be conducted as part of preparedness and contingency planning (Webler et al., 2010). Such assessments can be used to:

- Construct spill scenarios that appropriately consider response activities in relation to human dimensions impacts;
- Identify and prioritise potential human dimensions impacts including social and economic consequences that can arise from both spills and spill response activities;
- Characterise the vulnerabilities of individuals, groups, communities, and economic industries and sectors to impacts, and

- Identify effective response actions that may be implemented to prevent or mitigate impacts and vulnerabilities.

Sharing response information with external organisations traditionally has been the responsibility of communications specialists who work under the mantle of public affairs, public relations, external communications, or crisis communications. The focus of such external communications has been to provide information about what responders are doing to address the spill, and often with the additional purpose of influencing public beliefs, opinions, and judgments about the incident. Accurately informing the media and stakeholders, especially about spills which are controversial requires constant, real-time co-ordination and collaboration within the response organisation. Determining how to inform stakeholders about environmental, health, and safety risks associated with the pollutants is best accomplished using risk communication principles (Walker, 2012).

Simply defined, risk is a threat of loss, real or perceived, to that which we value and risk communication is the exchange of information about risks (Covello, 2007). Risk communication is a form of external communication. It requires 2-way communication – listening for expressed perceptions, concerns, and questions about potential risks, and then developing ways to address those concerns. Allowing for some independent evaluation of risk information is also important for risk communication to be effective because this aspect supports the credibility of the information. Researchers like Sandman[12] and Covello[13] have well established that:

- Public concerns typically are 95%perceptions and only 5% facts.
- People's behaviour is usually predicated on perceptions – often misperceptions – that differ substantially from reality (facts).
- Lack of clarity around controversial issues can lead to higher perceptions of risk and for stakeholders' to feel outrage.
- There is a low correlation between a risk's hazard (how much harm it's likely to do) and outrage (how upset it's likely to make people).

Comparing the way lay people perceive and think about risk (their "*mental model*") in relation to expert thinking (expert mental models), provides insight into risk perceptions and how to improve the context of stakeholder and public communication. The mental model approach of risk communication (Morgan et al., 2002) provides a structured way to engage expert thinking to address lay person risk perceptions and concerns. This approach has been applied in the US to improve understanding and communication with decision makers and the public about oil spills and dispersants (Bostrom et al., 1995; Bostrom et al., 1997; Scholz et al., 1999a and 1999b; and Boyd et al., 2001). Due to their limited distribution and availability, the findings in these reports were not used to guide public communications during the Deepwater Horizon response.

Some would argue that people are technically illiterate and ruled by emotion, hence, education is hopeless. Others argue that important decisions are made by special interests, political powers, the intellectual elite, or experts and that education is pointless. Decision and behavioural science research presents evidence that neither assertion is true. Citizens do not like risks imposed upon them, especially without their consultation. Because people's time is limited, they can't learn about or influence all risks.

[12] For more information on research efforts by Peter Sandman, go to: www.psandman.com/index-intro.htm.

[13] For more information on research findings by Vince Covello, go to: www.centerforriskcommunication.com/home.htm.

Research has also shown that most people can understand the basic issues needed to make a well-informed decision about many technically-based risks, given time, effort, and careful explanation (Morgan et al., 2002). An expert may also be a lay person when considering a risk outside their specialisation.

The goals of risk communication therefore are to:

- Enhance knowledge and understanding,
- Build trust and credibility, and
- Encourage situation-appropriate attitudes, behaviours and beliefs.

Learn about risk communication in Guidance Sheet 6 and about the use of message mapping for public communications through the media in Guidance Sheet 7.

Research has shown that when people are stressed they can only absorb a limited amount of information. Based on research findings, Covello (2007) offers a simple formula and message maps to help great develop concise, fact-based messages to communicate about risks during emergencies. The formula is 27/3/9: a risk message should contain no more than 27 words; convey three facts, and be delivered in no more than nine seconds. This aligns well with the actual way media develops headlines.

Risk Communication: Core Principals

When people are concerned, stressed or upset, remember the following when building your risk communication strategies and messaging:

- People want to know that you care before they care about what you know.
- Stakeholders have difficulty hearing, understanding, and remembering information when stressed.
- They focus most on what they hear first.

However, simple messages that are effective for supplying media with information about perceived risks may not suffice for local stakeholders. Public officials, residents, NGOs, and academic researchers often question the source and content of concise messages. These stakeholders want to know additional details to form their own judgments about risks. Effective real-time communications during an oil spill, therefore, must also provide for the rapid integration of risk communication with crisis communication. Engagement through (1) face-to-face meetings and open houses and (2) social media are ways to improve real-time external communications using risk communication principles during response.

Researchers have found that informal networked communication channels like social media are now one of the primary means by which time-sensitive, hazard information first reaches many members of the public. The capacity for these communications has been transformed by the widespread adoption of social media technologies (such as the micro-blogging service Twitter) which allows individuals to interact with a broad audience over great distances. During a disaster or crisis event, a networked communication mechanism provides the means to communicate information and facilitate collaboration and corroboration both locally and among distributed networks (Sutton, 2010; Sutton et al., 2008).

Research on the uses of the internet and social media in disaster events has shown that collective behaviours online parallel those emergent activities (Palen and Liu, 2007; Palen et al., 2007) and group formation (Shklovksi et al., 2008) that routinely occur in the aftermath of disaster (Drabek and McEntire,

2003; Quarantelli, 1996). When a crisis occurs, available social media are “appropriated” for the purpose of collecting and disseminating disaster-relevant information, and new disaster-related content is rapidly created and shared (Sutton et al., 2008).

Research suggests that social media and engagement can be important opportunities to improve response communication about risks. The collective "*wisdom of the crowd*" has been shown in some cases to have the capacity for self-correction (Surowiecki, 2004) as those invested in a particular topic or subject matter monitor online behaviours and content (Sutton et al., 2008), posting corrections as necessary. One example of this is that researchers have seen that social media has been used to accurately correct external experts, e.g., in the journal *Scientific American*, with their local knowledge. However, misinformation and rumour also have the potential to spread very quickly through online social networks (Fisher, 2008) due to the Internet’s informal structure and capabilities for unverified publication.

Applying Research Findings

This guide is relevant for community engagement for all spill situations, the vast majority of which are emergencies, not disasters or catastrophes. However, this guide can also be helpful for a response organisation which is evolving to meet the needs of a major spill situation which may be considered a technological disaster, and to engage a community which must find ways to mitigate the effects of, be resilient, and recover from that disaster.

Engagement at the community level by local authorities may serve as a means to resolving site-specific technical issues by providing appropriate input into the management of the response, which in turn may facilitate the process of evaluating and processing claims for compensation, as opposed to engagement solely to support resilience. Affected community residents and stakeholders at the local level need to understand how their input can be most effective and useful; responders need to appreciate that engagement can enhance community recovery from spills, especially major emergencies that become technological disasters. The practices subsequently described in this guide reflect how community engagement can:

- Interface effectively with the response organisation to help minimise impacts on the environment and socio-economic activities.
- Facilitate stakeholders’ ability to receive compensation for spill impacts in a timely manner which in turn facilitates restoration and resilience in affected communities.
- Support community resilience and recovery.

6. Glossary and Bibliography

GLOSSARY

Adaptive Resilience is manifested when a disaster event occurs and refers to the capacity of social units to overcome crisis-related problems through effort and ingenuity.

Biodegradation is an oil weathering process where naturally occurring bacteria and fungi in the environment consume hydrocarbons to use as a food source. The organisms metabolise the oil; carbon dioxide and water are excreted as waste products. It is a significant process which begins several days following a spill and will continue as long as hydrocarbons persist. Recent studies associated with the Deepwater Horizon oil spill have shown that biodegradation can be a rapid process and occurs even in cold, deep waters.

Catastrophe is defined as a sudden disaster of immense proportions that has severe consequences, often accompanied by destruction of assets and/or loss of life (from: http://www.businessdictionary.com/).

Category 1 and 2 Responders as defined by the Civil Contingencies Act of 2004 (CCA) –

Category 1: Core responders from the first responder community

Category 2: Key cooperating responders that act in support of the Category 1 responders (e.g., utilities, transport, health authorities).

Community Engagement is an important set of activities that can build a bridge between the response organisation and those most affected by oil or HNS spills to benefit all those with a stake in the response.

Community Resilience is the capacity of people to cope with a serious event that: impacted them, they did not cause, and is managed by outside entities like government, insurance, and experts.

Disasters are defined variously as:

- A sudden calamitous event bringing great damage, loss, or destruction of such scale that they disrupt (or threaten to disrupt) critical functions of an organisation, society or system, for a period long enough to significantly harm it or cause its failure (from the online Businessdictionary.com).
- A situation resulting from an environmental phenomenon or armed conflict that produced stress, personal injury, physical damage, and economic disruption of great magnitude.
- The result of a vast ecological breakdown in the relations between man and his environment, a serious and sudden (or slow, as in drought) disruption on such a scale that the stricken community needs extraordinary efforts to cope with it, often with

outside help or international aid (World Health Organisation).

- An occurrence of a natural catastrophe, technological accident, or human caused event that has resulted in severe property damage, deaths, and/or multiple injuries (US Federal Emergency Management Agency).

- Many people trying to do quickly what they do not ordinarily do, in an environment with which they are not familiar (Tierney).

Disaster Agent is the cause of an event.

Dissolution, an oil weathering process, is the transfer of oil components from a slick on the surface into solution in the water column. It is a relatively insignificant weathering process in terms of reducing the volume of the spills and typically occurs within the first 24 hours of a spill.

Emergence is when new organisations and groups occur in order to deal with disaster-related problems that their members define as pressing and when the community feels it necessary to respond to or resolve their crisis situation (Wenger, 1992) and steps in to form an emergent organisation. Emergence evolves to fill the inadvertent gap between victims' needs and the inability of the external parties to provide them, intentionally or otherwise.

Emergencies are defined as:

- Any event that threatens serious damage to human welfare, the environment, or the security of the UK or part of it under the Civil Contingencies Act of 2004 (CCA).
- The sudden, unexpected, or impending situation that may cause injury, loss of life, damage to the property, and/or interference with the normal activities of a person or firm and which, therefore, requires immediate attention and remedial action (from: www.businessdictionary.com).

Emulsification, an oil weathering process**,** is the mixing of water droplets into oil spilled on the water's surface. Most spills oil can take up water when wave action mixes water into the oil. Emulsification can increase the volume of a pollutant by a factor of up to five times. Water-in-oil emulsions are highly viscous and have densities approaching seawater. If the emulsified oil comes into contact with sediment in the water column, the oil can become denser than seawater and no longer float on the surface. Once the oil has emulsified, the weathering of oil can be significantly reduced. Emulsification begins during the first day of the spill and can continue to occur throughout the first year. The greatest degree of emulsification is typically within the first week of the spill.

Encounter Rate refers to the amount of oil which comes into contact with a response device e.g., oil skimmer, towed boom, dispersant aircraft or boat spray application, over a given period of time.

Environmental Emergency is defined in the Civil Contingencies Act of 2004 (CCA) as an event or situation that threatens damage to the environment only if it involves, causes, or may cause contamination of land, water, or air with biological, chemical or radio-active matter, or disruption or destruction of plan or animal life.

Evaporation is an oil weathering process which involves the transfer of light- and medium-weight components of the oil from the liquid phase to the vapor phase. It is the primary weathering process involved in the natural removal of oil from the sea surface. From the standpoint of volume reduction, it is the single most important weathering process during the first 24 to 48

hours of the spill. It starts immediately following the spill. The rate of evaporation depends upon wave and wind conditions. Lighter oils evaporate more quickly than heavier oils; spills of gasoline for example may evaporate almost completely within a few hours leaving just a small residue. Light crude oils also can evaporate quickly, e.g., Cossack can lose up to 50% of its volume in the first day.

Harmful Substances are those identified as marine pollutants in the IMDG Code and Annex III of MARPOL 73/78.

Hazard is defined as a possible source of danger or any real or potential condition that can cause injury, illness, death, or damage to or loss of equipment or property.

Hazardous and Noxious Substance is defined as any substance other than oil which, if introduced into the marine environment is likely to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea under the OPRC-HNS Protocol.

Human dimension impacts are defined as all spill impacts which are not ecological. The human dimensions of spills include health, social, economic, use, and cultural impacts to a wide range of entities at multiple scales, including individuals, families, businesses, communities, institutions, and government.

Human Welfare Emergency is defined in the Civil Contingencies Act of 2004 (CCA) as an event or situation that threatens damage to human welfare only if it involves, causes or may cause loss of human life, human illness or injury, homelessness, damage to property, disruption of a supply of money, food, water, energy or fuel, disruption of a system of communication, disruption of facilities for transport, or disruption of services relating to health.

Incident Commander refers to the functional responsibility for management of the overall response; the leader of the response organisation. For major spills in the UK, the Secretary of State's Representative for Salvage and Intervention (SOSREP) is the incident commander.

Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability (from AA1000SES, 2011); understanding and accepting as valid key stakeholder concerns, their performance perceptions/expectations, and your past and future capacity for coherent responses to your community and stakeholder issues.

Inherent Resilience is defined as the characteristics of different social units (households, businesses, communities, local economies) that serve as sources of strength when the social order is disrupted.

Local Authorities are defined in this manual as emergency managers who manage onshore response actions and civil contingencies for oil and HNS spills.

Natural Dispersion, an oil weathering process, is when small oil droplets become incorporated into the water column in the form of a dilute oil-in-water suspension. Following evaporation, it is the most important process in the breakup and disappearance of a slick. It begins soon after the spill occurs and reaches a maximum rate in approximately 10 hours following a spill. Dispersion reduces the volume of the slick at the surface but does not change the physiochemical properties of the oil.

Net Environmental Benefit Analysis or NEBA compares the relative limitations and benefits of the various response options for a specific-spill situation or in a planning scenario to identify which option(s) will result in the best outcome for the environment. Similar terms found in the literature are NEEBA (Net Environmental and Economic Benefit Analysis), and NEDRA (Net Environmental Risk and Damage Assessment).

Outrage suggests strong negative emotion but also suggests that the emotion is justified because people believe experts are ignoring things they are worried about. Outrage has a built-in ambiguity in that it applies to both the circumstances that provoke the public's response and the response itself. Outrage predisposes an individual to react emotionally (e.g., with fear or anger), which can in turn significantly amplify levels of worry. Outrage also tends to distort perceived hazard. But outrage factors are not only distorters of hazard perception. They are also, independently, components of the risk in question – and may themselves be perceived accurately or inaccurately (Sandman, 1993).

Oxidation is an oil weathering process caused by sunlight, which in the presence of oxygen, transforms hydrocarbons through photo-oxygenation into new by-products. It occurs at the very surface of the oil and directly on components which have physically separated from the whole oil. It is a minor process, and can last for several weeks or longer following a spill.

Resilience is the capacity of people to cope with a serious event that: impacted them, they did not cause, and is managed by outside entities like government, insurance, and experts.

Resilient Communities Wilbanks (2008) are those locales and regions that maintain four key elements that enable the:

1. Ability to anticipate disruptive events,
2. Capability to respond to them effectively,
3. Mechanisms to recover from them equitably and efficiently, and
4. Ability to take steps to reduce vulnerabilities from future events.

Risk is the probability or threat of loss, real or perceived, of that which we value (Covello, 2007).

Risk is a multiplication of two factors: magnitude, which is how bad it is when it happens, times probability, which is how likely it is to happen (Sandman, 1993).

Risk Communication is the exchange of information about risks (Covello, 2007).

Risk communication includes actions, words, and other interactions that incorporate and respect the perceptions of the recipients, intended to help people make more informed decisions about threats to their health and safety (Ropeik, 2008).

Risk communication is the interactive process of exchange of information and opinions among individuals, groups, and institutions concerning a risk or potential risk to human health or the environment (NRC, 1989).

Risk communication means communication intended to supply lay people with the information they need to make informed, independent judgments about risks to health, safety and the environment (Morgan et al., 2002).

Sedimentation is the incorporation of oil within both suspended and bottom sediments. Sedimentation is a very important process in shallow, rough sea conditions where bottom sediments are repeatedly re-suspended. It begins soon after the spill occurs and peaks several weeks into the spill. Shoreline stranding is the visible accumulation of oil on shorelines following a spill. It is affected by the proximity of the spill to the shore, intensity of current and wave action on the affected shoreline, and the persistence of the spilled product.

Social Capital is the web of cooperative relationships between citizens that facilitate resolution of common problems (Wilding, 2011).

Spreading is an oil weathering process which begins immediately and is the movement of the entire slick horizontally on the surface of the water. Spreading dominates the initial stages of the spill and involves the whole oil, that is, it does not affect the oils chemical composition. Spreading is not uniform and variations in oil thickness occur within a slick. The rate of spreading in primarily affected by the viscosityand specific gravity of the oil, volume spilled, waves, turbulence and currents.

Stakeholder is defined as a person, group, or organisation that has interest or concern in something, including a business or a response; one who is involved in or affected by a course of action or decision-making; a person such as an employee, customer or citizen who is involved with an organisation, society, etc. and therefore has responsibilities towards it and an interest in its success.

Stakeholder Engagement refers to a tool that organisations use to help them achieve the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability (from AA1000SES, 2011). It is a process used by an organisation to engage relevant stakeholders for a *clear purpose* to achieve *accepted outcomes.*

Swath width refers to the total width of the collection area mouth for a recovery device (e.g., skimming system) while operating.

Technological Disaster is defined as an incident that results from human causes, including terrorism, and is perceived as preventable.

Toxic effect is an adverse impact caused by a chemical. A toxic effects is a function of the frequency and duration of exposure to a chemical and the concentration of a chemical; it can be produced by short-term (acute) or long-term (chronic) exposure.

Toxicity is defined as the inherent potential or capacity of a material to cause adverse effects in a living organism. Toxicity is relative. **Acute toxicity** refers to a high toxicant dose over a short period of time, whereas, **chronic toxicity** refers to small doses over a long period of time. In the case of oil spills, most negative effects from short-term exposure may be observed early in the spill.

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SEA Consulting Group

325 Mason Avenue

Cape Charles, VA, USA

Tel. +1 757 331 1787 – Fax +1 757 331 1788

Email: ahwalker@seaconsulting.com

Website: www.seaconsulting.com