Risk management: The New Zealand marine oil spill response strategy

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Abstract

New Zealand manages the risk associated with marine oil spills by maintaining a comprehensive approach to prevention and response. Prevention is managed through industry compliance with international standards in shipping and oil industries. Response is managed through the New Zealand Marine Oil Spill Response Strategy. Key elements of the response strategy include risk assessment and risk management. A factual and critical analysis of marine oil spill risk underpins all aspects of preparedness and response, from determining who creates the risk (and therefore who should meet the cost of preparedness) to necessary planning, equipment and training requirements. Applying the principles of a tiered approach to preparedness and response; requiring each tier to maintain a contingent capability; having local, regional and national marine oil spill contingency planning; and insisting the polluter pays ensures that risk is recognised and managed as close to its source as possible. Key also is the co-operative approach expected (and mandated for) within the strategy between the industries, levels of government, responsible agencies and international response support (both industry and government).

Introduction

Protection of the marine environment from pollution is a high priority for New Zealand. As it isn't always possible to prevent marine pollution incidents such as oil spills, New Zealand has recognised the need to prepare for them. This means assessing the risk and successfully implementing a range of risk management strategies for both marine oil spill prevention and response. This paper will focus on the latter. The former is addressed through compliance with and monitoring of both industry and government standards; many of these are international in application.

It has been said that nothing focuses the mind like a disaster – particularly when that disaster has happened to someone else. "There but for the grace of God go us" may well have been in the minds of the government officials given the task of reviewing New Zealand's position and learning lessons from the rash of major international marine oil spills which seemed to plague the 1980s; which concluded spectacularly with the now infamous *Exxon Valdez* incident in Alaska in March 1989. New Zealand has never experienced a major catastrophic marine oil spill, and has taken full advantage of this fortunate position to prepare itself, as best it can.

Having seen the problems faced overseas, the New Zealand policy-makers embarked on an ambitious programme of change and improvement. From the "lessons learnt" phase came the beginning of new policy. First, there would be a "strategy" for marine oil spill response preparedness. Within this would be all of the necessary policy and operational elements. The New Zealand Marine Oil Spill Response Strategy was first published in 1992. It was formally reviewed and revised in 1996, and is again under review at present.

To successfully implement the Strategy would require new and improved legislation; the existing Marine Pollution Act 1974 was recognised as limited in its scope and vision. A comprehensive package of laws, including the Maritime Transport Act 1994 was developed.

Finally, there would be a new means to deliver the system demanded by the strategy – a co-operative approach from industry, regional and central government. A new agency, the Maritime Safety Authority (MSA) would be given the task of developing and implementing the system.

New Zealand's subsequent progress in developing its marine oil spill response capability has been rapid. Over the 1990s it has evolved from being extremely limited into the present modern response system. The New Zealand system now has the nation-wide capability to respond to spills ranging from small to large, as well as the capability to respond to catastrophic spills with the assistance of the international community.

Part one - 1992 to 1998

Underpinning the Strategy, and providing a sound basis for much of the subsequent legislation, national and regional response planning, personnel training, equipment acquisition and exercises, are formal marine oil spill risk assessments. National marine oil spill risk assessments have been completed in 1992 and 1998.

The 1992 risk assessment

The 1992 risk assessment was undertaken to characterise the risk of oil pollution around the New Zealand coastline. Specific assessments of the sea areas, coastline and ports of New Zealand were undertaken. The proportion of overall risk which specific oil types contribute was also determined. An assessment of the consequences of oil spills on the resources of the New Zealand marine environment was also included, although this was somewhat constrained due to a general paucity of data.

The 1992 results provided an indication to regional government of the oil spill risk associated with their ports and related coastal areas. From these a national risk profile was developed. These risks have subsequently been incorporated into regional marine oil spill response plans and The National Marine Oil Spill Contingency Plan. Deliberately not addressed in the risk assessment was likelihood and consequences of a large, catastrophic spill. At that time this type of spill was considered to be unpredictable. However, New Zealand has still attempted to address that issue by leveraging the response with other countries via international agreements and mutual aid. It was also concluded that risk assessments should be completed on a regular basis, perhaps as often as every six years (equating to every second review of the Strategy – see below).

In 1998 a second national risk assessment was undertaken. This will be discussed in much more detail below, however, it is important to note that this 1998 risk assessment (and its results) owes a great deal to the much improved response system which developed out of its 1992 predecessor.

New and improved legislation

New Zealand started its transformation with policy preceding legislation. The development of the 1992 Strategy provided much of the impetus for marine oil spill response components of the Maritime Transport Act 1994 (MTA). The MTA legislates for or provides for most of the key elements of the response strategy and system. The Act mandates a consistent approach by national and regional agencies, and by the maritime industry which creates the spill risk. It requires a three-tiered approach to contingency planning. It also mandates a single point of command and control for spill response at any one time through the statutory appointment of regional and national On-Scene Commanders. The New Zealand marine oil spill response system does not provide for unified command as used elsewhere in the world.

Under the MTA, the Director of Maritime Safety is provided with comprehensive powers. The Director is also responsible for:

- developing and maintaining the New Zealand Marine Oil Spill Response Strategy;
- developing and implementing the National Marine Oil Spill Contingency Plan;
- approving regional marine oil spill contingency plans;
- providing training to response personnel; and
- appointing national and regional On-Scene Commanders.

The Act, however, is constrained in its geographical application. The provisions of the MTA apply only to marine oil spills, i.e. spills which occur in New Zealand marine waters. This is effectively the area of sea which extends seaward from the high water mark on the coast to the seaward limit of the Exclusive Economic Zone (EEZ). Where the New Zealand continental shelf extends past 200 miles this is also included. However, lakes and rivers are excluded from its application.

The 1996 New Zealand Marine Oil Spill Response Strategy

The New Zealand Marine Oil Spill Response Strategy describes how New Zealand will efficiently and effectively minimise the impact of oil pollution from ships and oil transfer sites on the marine environment within New Zealand's area of responsibility.

The Strategy promotes:

- The actions to be taken, and by whom, in response to an oil spill in New Zealand marine waters;
- The need for a standard response to marine oil spills in New Zealand irrespective of who is responding; and
- A co-ordinated approach to both marine oil spill contingency planning and any actions taken in response to marine oil spills under these plans.

The 1996 Strategy restated existing policy and confirmed a number of new principles. These can be discussed as elements of a smaller number of key Strategy components, including:

Risk assessment

As noted above, risk assessment is considered to be an integral part of response planning and preparation. In particular, it is expected that the various maritime industries which contribute to the risk of marine oil spills will undertake their business without creating unnecessary risks, and will be responsible for the risks they do create.

Maintaining safety of the public and responders has always been given the highest priority. This is taken account of in the assessment of risk, both at strategic and operational levels.

The latter is incorporated in training, exercises, planning and operational response.

All preparation and response operations have the goal of achieving a positive net environmental benefit out of any spill which does occur.

Funding and costs

The MTA requires that the MSA provide New Zealand with an effective marine pollution prevention and an effective marine oil pollution response system at a "reasonable cost". The Act defines reasonable cost to be "where the value of the cost to the nation is exceeded by the value of the resulting benefit to the nation". This places a significant duty on the MSA and the Director (including all MSA staff) to ensure that the Strategy is delivered in a cost-effective and efficient manner.

Funding for the establishment and maintenance of the Strategy and response system comes from a levy (tax) on the maritime industries and users which create the risk of marine oil spills. This Oil Pollution Levy (OPL) is paid into the New Zealand Oil Pollution Fund (OPF) which is administered by the Maritime Safety Authority of New Zealand (MSA). The Minister of Transport must approve all expenditure from the OPF. Risk assessment is used to assist in setting a levy regime which ensures a fair and equitable apportionment of preparedness costs against those who create the risk.

Wherever possible the full cost of any spill response and clean-up operation is sought from the spiller. This is known as the "polluter pays" principle. Efforts are made at both regional and national levels to ensure that costs are recovered. Where some or all of these costs can not be recovered from

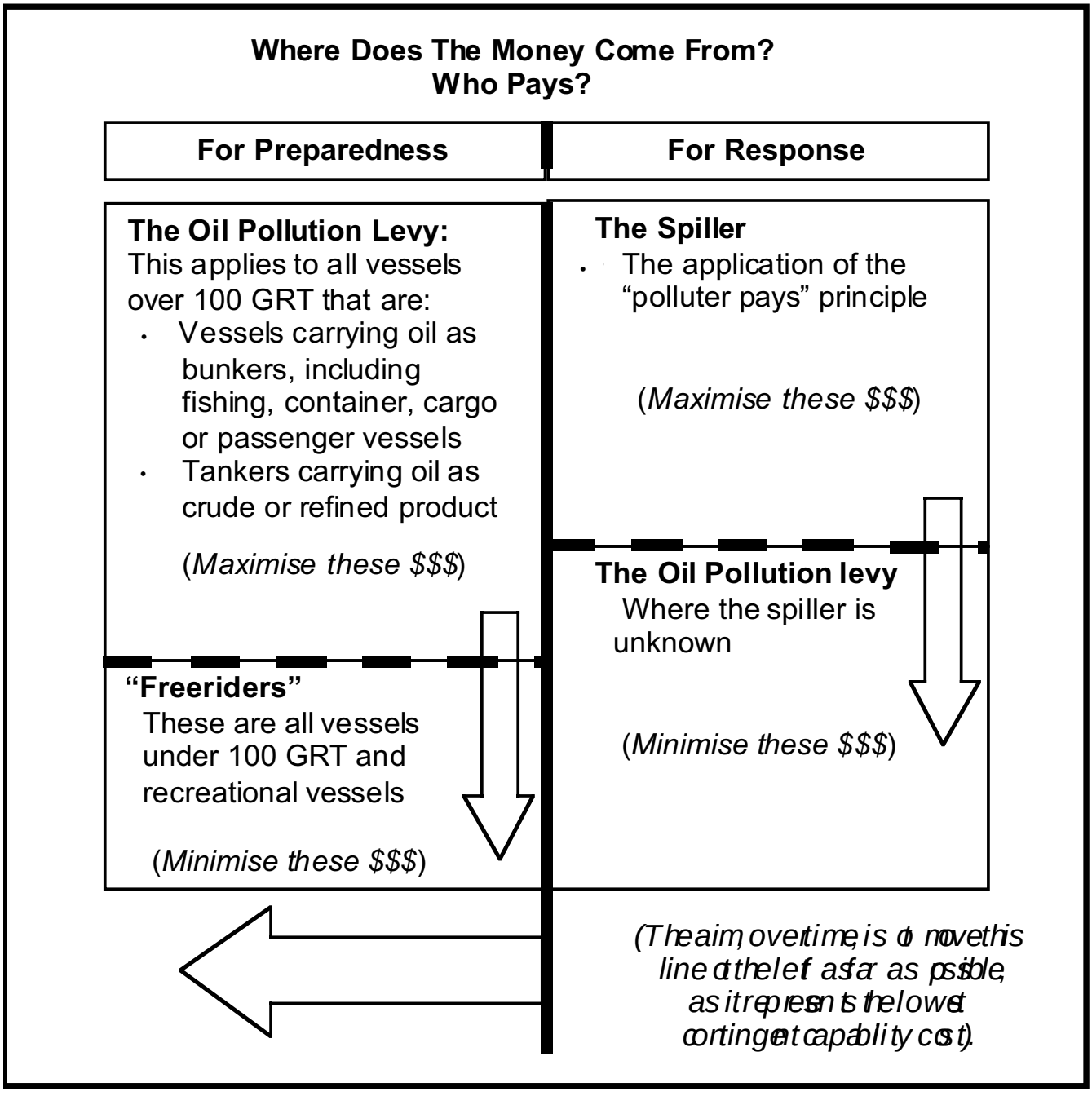

Figure 1: Early contingent capability and funding model.

the spiller the Oil Pollution Fund can be used to make up the shortfall. However the Levy and Fund exist principally to prepare for marine oil spill response - it is not an insurance scheme to pay for response costs.

Successful cost recovery hinges on the early detection of spills, the collection of evidence necessary for prosecution of offenders, and the development and maintenance of information systems to ensure that all costs are recorded and accounted for.

Contingent capability

The New Zealand Marine Oil Spill Response Strategy is an application of the principle of contingent capability. Preparation should be sufficient to ensure an appropriate level of response can be initiated and maintained, including responses at levels which exceed local resource capability. This means that day-to-day functions (preparedness and planning) are carried out at a minimum reasonable cost, while still allowing the response agency the ability to expand as and when necessary, and be able to sustain a higher level of output during a spill response.

Under this approach, the management task is to lower preparedness costs without sacrificing response capability. This applies at both regional (Tier 2) and national (Tier 3) levels. Regions can source extra support from within and outside the region, including escalating the response to a national (Tier 3) level. For the MSA it means being able to call upon the combined resources of the regions and industry supporters, and, if necessary, being able to seek international assistance also.

New Zealand is planning to have sufficient response resources available to successfully combat a spill of around 7500 tonnes of oil, without the need to seek international assistance. However, maintaining a contingent capability means, in essence, that the national contingency plan must provide the means for the National On-Scene Commander (NOSC) to be able to control any marine oil spill regardless of size. Appropriate systems need to be in place to obtain the extra support from international sources; hence New Zealand's arrangements for international support and co-operation on oil spill preparedness and support.

Decentralisation

New Zealand has adopted a progressive, three-tiered approach for all preparation, planning for, and response to, marine oil spills. This spreads risk and provides for an application of the contingent approach to response. Marine oil spill response resources (equipment, plans and expertise) are located near recognised risk areas to ensure that in the event of a spill there will be a prompt first reaction. Escalation of response can be achieved through contingent capability, should resources locally prove inadequate.

Partnership and co-operation

Oil spill planning and response requires a co-operative and co-ordinated approach. In preparing for marine spill response the MSA has access to the advice of the Oil Pollution Advisory Committee. This committee, which assisted in the development of the original 1992 Strategy, is comprised of representatives of the various oil, shipping and port industries, as well as central and regional government. Those who create the risk work side by side with those charged with responding to spills to lower the likelihood of their occurrence and to mitigate their effects if they do occur.

During spill response, the spiller, if known, is expected to be involved, as far as practical, in all phases of the response operation. Support to the spill response operation is likely to be forthcoming from the other associated industries which make up the New Zealand response system in a co-operative manner, including international support sourced through overseas offices and associates.

Clarity of responsibilities

The Government of New Zealand through the Maritime Safety Authority and regional government, accepts the responsibility for ensuring that the public interest is recognised and protected. There is a need for leadership in spill response preparedness and this role has been given to the MSA. The Act requires it to ensure national consistency and co-ordination occurs in preparation, planning and response, and all operational guidelines. Marine protection rules and regulations are published accordingly.

All people, agencies, organisations and businesses associated with planning and response are expected to be aware of and committed to their agreed responsibilities. The Strategy and legislation together define these roles.

During the response, clarity of command and control is essential. Whilst co-operation and consultation with other interested parties is recognised as crucial to success, the New Zealand approach is not that of unified command. Responsibility lays in the hands of one trained and experienced person, the On-Scene Commander (OSC). These are statutory appointments and give the people so appointed the authority and responsibility to manage marine spill response operations. In support of the OSC New Zealand has adopted a modified Incident Command System as its spill response management structure.

Preparedness

Expertise, training, contingency plans, response equipment and other support resources are allocated according to national and regional needs, based on assessed risk and the practicality of deployment. These elements form the components of the New Zealand Marine Oil Spill Response System.

New Zealand's marine oil spill response system

Using the outcome of the 1992 risk assessment, the concept of contingent capability and the polluter pays principle, New Zealand has adopted a three tiered approach to marine oil spill response. Industry (Tier 1), regional government (Tier 2) and the Maritime Safety Authority (Tier 3), all have clear roles and responsibilities. The statutory provision for these

tiers is contained in the Maritime Transport Act 1994 and provides the basis of effective mitigation of the risk of oil spills.

Tier 1 is site-specific. A 'site' is a location where oil is transferred to or from ships, either as cargo or as fuel. In addition offshore installations and all vessels are deemed to be sites. All Tier 1 sites and vessels must have a contingency plan and be able to provide an initial response to their own spills.

Tier 2 is provided by regional government. These agencies are responsible for providing an operational response to marine oil spills within their regions out to the 12 nautical mile limit of the Territorial Sea. Involving regional government builds on their role in environmental protection and makes use of the existing infrastructure. MSA therefore does not need its own costly regional support structure. The cost of regional government preparedness functions under the MTA is met from the New Zealand OPF and not local rates (taxes).

Regional government responds to marine oil spills that exceed the clean-up capability of Tier 1. They also respond to those spills for which no spiller can be identified. The Maritime Safety Authority provides resources to regional government to ensure that sufficient equipment, personnel training courses, and opportunities to exercise their capability are available for them to competently undertake this role. Regional government also has responsibility for ensuring that industries with oil transfer sites within their region produce appropriate marine oil spill contingency plans.

Tier 3 is the responsibility of the Maritime Safety Authority (MSA), and is focused through the National Marine Oil Spill Contingency Plan. When a spill occurs which is beyond the resources of the region, or if the cost of the response is expected to be greater than $250,000, the MSA assumes responsibility for managing the spill response through the National On-Scene Commander. Responses to spills that arise within the EEZ, but outside regional government boundaries (the Territorial Sea), and spills that occur over the New Zealand continental shelf are the immediate responsibility of the MSA.

New Zealand's aim is to have sufficient oil spill response equipment and personnel to manage a spill response for approximately 7500 tonnes of persistent oil before needing to seek international assistance. New Zealand has put in place agreements with international agencies and other Governments to enable an international response for large or catastrophic spills. Foremost among these is the AMSA/MSA memorandum of understanding. Arrangements have also been put in place to access equipment and personnel with AMOSC, EARL and OSRL.

Marine oil spill contingency plans are mandatory at all three tiers and are used to prepare for oil spill incidents. Each regional and site plan is to be consistent with the Strategy and the National Marine Oil Spill Contingency Plan. These plans include, or where appropriate refer to, detailed information similar to that in contingency plans of most other IMO member countries.

Part two: 1998 and beyond?

The 1998 marine oil spill risk assessment

In the six years since the last risk assessment was completed a number of key changes had occurred in New Zealand spill response system. The Maritime Transport Act had become law, the 1996 New Zealand Marine Oil Spill Response Strategy had been approved and implemented in 1997, and the National Marine Oil Spill Contingency Plan had been developed. Much change had also apparently occurred in the various maritime industries. The MSA determined that the time was right to assess if the structures and systems put in place were still appropriate.

The purpose of the 1998 marine oil spill risk assessment was to improve both the New Zealand Marine Oil Spill Response Strategy and the cost-effectiveness of New Zealand's marine oil spill preparedness capability.

In particular the risk assessment was expected to:

- establish a methodology for analysing likelihood, risk and desired response capability;
- determine the activities and other oil spill risk factors in a structured way, including foreseeable trends in activities, including large vessel bunkers;
- quantify the relative contribution of the various activities and factors to regional and national risk profiles, including the type of oil spilled and environmental vulnerability;
- determine the level of preparedness required in each location and overall;
- identify the incremental cost of preparedness and the factors influencing it; and
- determine international practice and standards in risk identification, preparedness and prevention.

The risk assessment was approached in three phases:

Phase one - planning the risk assessment

During this preparatory phase the data models were defined and the Terms of Reference determined. This planning phase took approximately four months to complete, so that all the necessary outcomes could be canvassed and prioritised. Two consultants were engaged: one well versed in risk assessment and policy analysis was engaged to ensure completeness and to ensure data integrity during later analysis; a second to develop the model, collect the data and provide the analysis. Phase one was completed at the end of March 1998.

Phase two - risk assessment data collection, collation and analysis

During this phase consultants interviewed and questioned industry and government agencies about their roles and activities. They focused on the collection and collation of local and international data on activities that create risk,

locations which contain threatened resources, and existing preparedness for spill response. From this came the development of spill risk models, development of spill scenarios and the applicable return times for spill incidents.

A second task was the evaluation of existing systems for spill prevention and mitigation around New Zealand. The spill prevention and response systems implemented under the current Strategy were compared with international best practice for spill prevention and response to determine if local spill risk is being effectively mitigated. This phase was completed by December1998.

Phase three – policy analysis and review

During phase three the data report was analysed by the MSA and its policy consultant. Particular emphasis has been paid to risk mitigation strategies and the cost and cost-effectiveness of these. The information from the risk assessment has been used directly in three major reviews:

- the review of the New Zealand Marine Oil Spill Response Strategy;
- the review of the Oil Pollution Levy; and
- the review of the New Zealand National Marine Oil Spill Contingency Plan.

The results have also been used by regional councils in their review of their contingency plans. The results have also been made available to industry through the Oil Pollution Advisory Committee.

The three phases are represented in Figure 2.

Definition of risk

For the purposes of the 1998 risk assessment it has been necessary to develop and include a very specific definition of the risks involved. Risk has been defined as the likelihood of a given marine oil spill (of a specific size and type of oil from a given user group or activity), together with the costs of preparing for, responding to and cleaning up that spill, including any costs associated with preparation to reduce environmental, economic and social impacts. This differs from the usual definition of risk, in that preparatory costs are being used as a proxy for consequences which cannot be predicted. It is widely recognised that it is difficult, if not impossible, to actually prepare for a marine oil spill. The location, size, effects and consequences of a spill can at best, only be estimated. Hence, the costs of preparation for response are being used as a proxy, reflecting an interpretation of society's willingness to pay to mitigate oil impacts or effects.

Principal result areas

Among many others, the risk assessment produced three major results of immediate use.

National nominal spill planning target: The first was the re-assessment of the level of spill risk that New Zealand as a whole should plan for. The results were presented by the

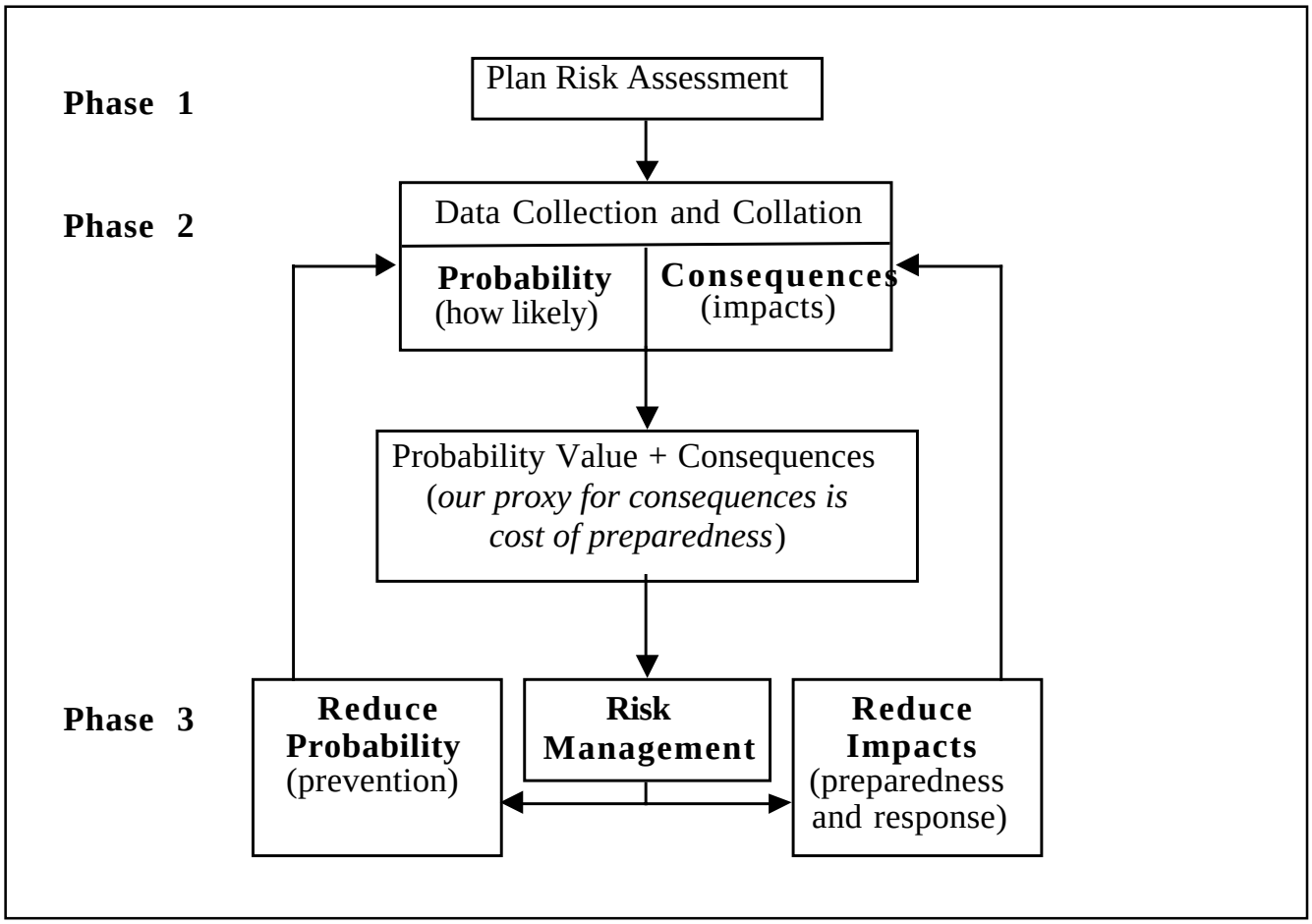

Figure 2: Risk assessment strategy.

consultants in the form of a series of graphs, showing return times for particular spill sizes. The summary graph is shown as Figure 3. This data has been converted to estimate spill sizes for specified return periods and this data is shown in Table 1. In these the spills are shown in terms of both likelihood and size (equating to effect), which reflects a more risk management-oriented way of addressing the problem, than was previously done.

This data has suggested that the existing national target spill size of 7500 tonnes of persistent oil as derived from the 1992 risk assessment and incorporated into the 1992 and 1996 strategy documents, may now be too large. The lower risk profile (bearing in mind the fact that this is a risk assessment and not an actuarial calculation) reflects the inclusion of catastrophic spills into the assessment (very low frequency), the inclusion of non-persistent oil in the assessment (reflecting New Zealand's actual oil spill character), and the improving international and domestic safety record for marine oil spills.

Risk allocation: The second major result is the determination of the risk created by the various maritime sectors. This has

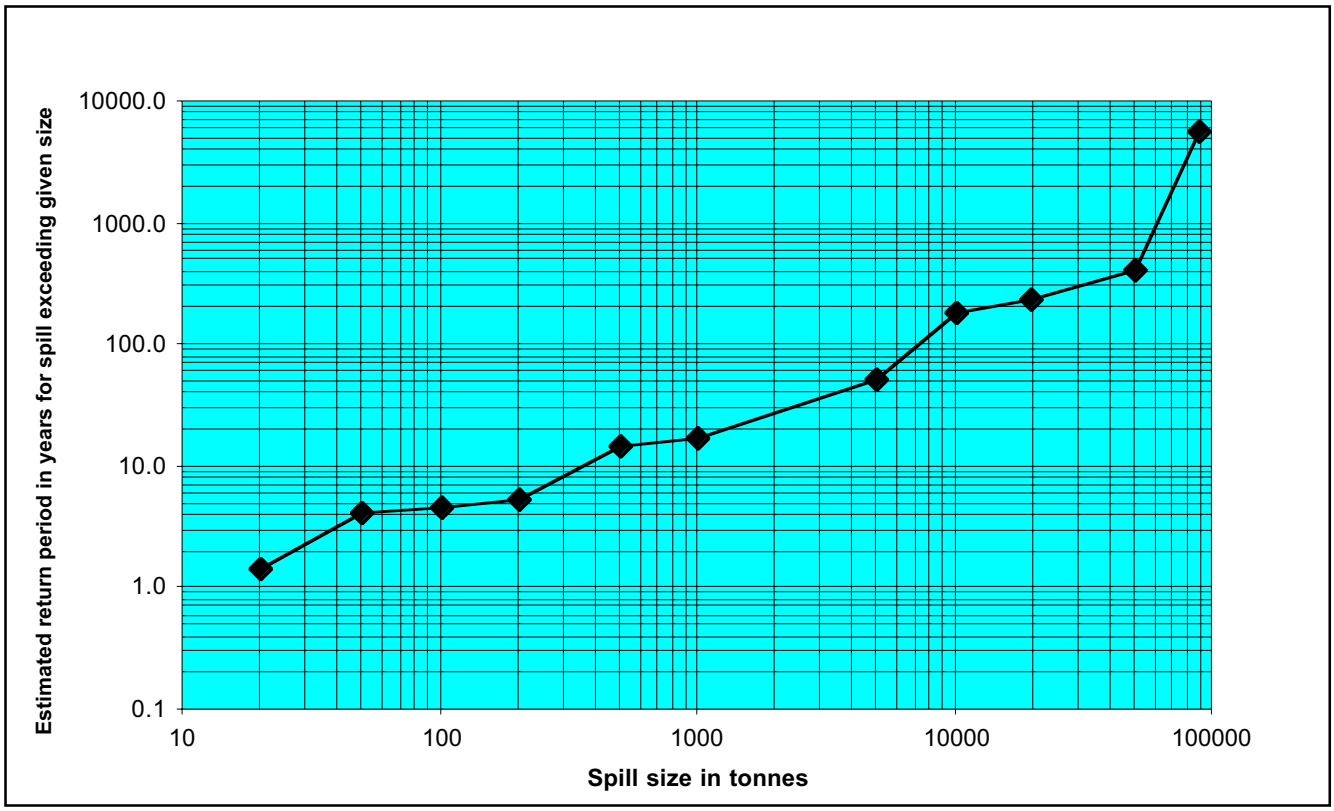

Figure 3: Estimated return periods for spills exceeding specific sizes.

Marine Oil Spill Size	(tonnes approx)		
Annual PEL (Probability of Exceedance Level)	**All oils**	**Persistent oils only**	**Return period**
0.5%	12500	6150	1:200 year event
1%	6900	5050	1:100 year event
1.3%	5900	3800	1:75 year event
1.7%	5350	2950	1:60 year event
2%	4900	2300	1:50 year event
2.5%	3600	1750	1:40 year event
4%	1850	630	1:25 year event
5%	1300	410	1:20 year event
10%	350	165	1:10 year event

Table 1: Estimated spill sizes for specified return periods.

changed from the earlier risk assessment in two significant ways. The first is that because of the change in the nominal national target from 7500 tonnes of persistent oil, to 7000 tonnes of all oils, the nature of the overall spill risk has changed with less emphasis placed on the less likely larger spills of crude oil. The second is that more risk creator groups have been identified and included, with the potential to ensure a more equitable spread of risks and costs.

The comparisons between the 1992 and 1998 risk groups and their weightings are shown in Table 2 below.

Operational response: A review of international best practice produced a number of recommendations about how New Zealand could improve its operational response, including formal adoption of risk assessment as part of contingency planning and the more extensive adoption of the Incident Command System as a response management model.

Risk management

Marine oil spill risk management is the evaluation and implementation of programmes and policies for reducing the probability and consequences of marine oil spills. Risk reduction strategies must address either one or both of these two areas to be effective:

- options to reduce spill probability, or
- options to reduce the effects or impacts of spills.

1998 risk assessment results

The results of the risk assessment are already enabling the MSA, the Ministry of Transport and the Oil Pollution Advisory Committee to review the major policy areas of the Strategy and Oil Pollution Levy, and to improve the National Plan.

First, it has provided a new risk profile for each region (coastal and port), as well as a new national risk profile (see above). From this MSA will be able to identify what preventive and preparedness measures could be taken to lower the likelihood and impact of a spill. Another could be a re-evaluation of the overall size of spill which New Zealand is preparing for which would determine national equipment and training needs.

Based on the model and data presented, it has been proposed in the review of the New Zealand Strategy that domestic preparation should be focussed on a maximum spill size of around 7000 tonnes of all oils, as a 1:100 year event or the event with a 1% annual probability of exceedance level (PEL). This is a different approach to the existing set target of 7500 tonnes, which had no likelihood estimate associated with it. Expressing the national target spill as a size and likelihood makes planning and costing the system needed to respond much more transparent.

The original nominal 7500 tonne national target spill size came from the possibility of a crude spill from a tanker at New Zealand's only oil refinery, Marsden Point in Northland. It was also chosen to reflect New Zealand's national target spill size for consistency.

The proposed new target spill size is also a reflection of the very pragmatic acceptance that in addition to maintaining an acceptable domestic capacity to respond to the wide range of spill risks it continues to have, it must be able to give support to its international partners, if asked. In the even more unlikely event of a larger spill here, New Zealand must also be able to "hold the fort" until help arrives. This is the very tangible implication of "at reasonable cost" by implementing a system based on "contingent capability".

Second, it has enabled MSA to determine the relative risk contribution each maritime activity makes to the total New Zealand risk profile. From this, new assessments will be made of the relative contribution each maritime industry and sector should make to the overall cost of marine oil spill response preparedness. The outcome will be a revision of the Oil Pollution Levy, and the amount each sector and industry participant contributes to the overall OPF.

The review of the Oil Pollution Levy will use these risk weightings to assist in setting the new levy regime and to take into account the wider range of risk creators and hence financial contributions which will follow. This places the cost of risk more closely with those who create it. From this should come a more conscious management of risk by the various industries in their daily activities and business planning.

Third, it will enable an assessment of shipping and industry trends which may have an influence on future levels of risk or New Zealand's ability to prevent or respond to marine oil spill incidents. It will enable weak links in management procedures to be identified and corrected. It will allow New Zealand to assess the costs and benefits of its participation in international initiatives, such as the proposal to create an international bunkers convention along the lines of the International Oil Pollution Compensation Fund 1992.

Risk Contribution by Industry Sector	Foreign crude/product tankers	Coastal product tankers	Int'l cargo & passenger	Coastal cargo & passenger	Fishing	Small craft	FPSO/ Maui Field
1998 Risk Contribution	20%	23%	33%	6%	6%	5%	6%
1992 Risk Contribution	23%	29%	37%	4%	3%	3%	n/a

Table 2: Maritime sector oil spill risk allocations.

Conceptually, the above outcomes of the risk assessment are illustrated in Figure 4. In essence, the purpose is to use the outcomes to determine the optimum level of preparedness for a given level of risk, and to offset the cost of this preparedness against those who create the risk, according to their relative contribution to the total risk.

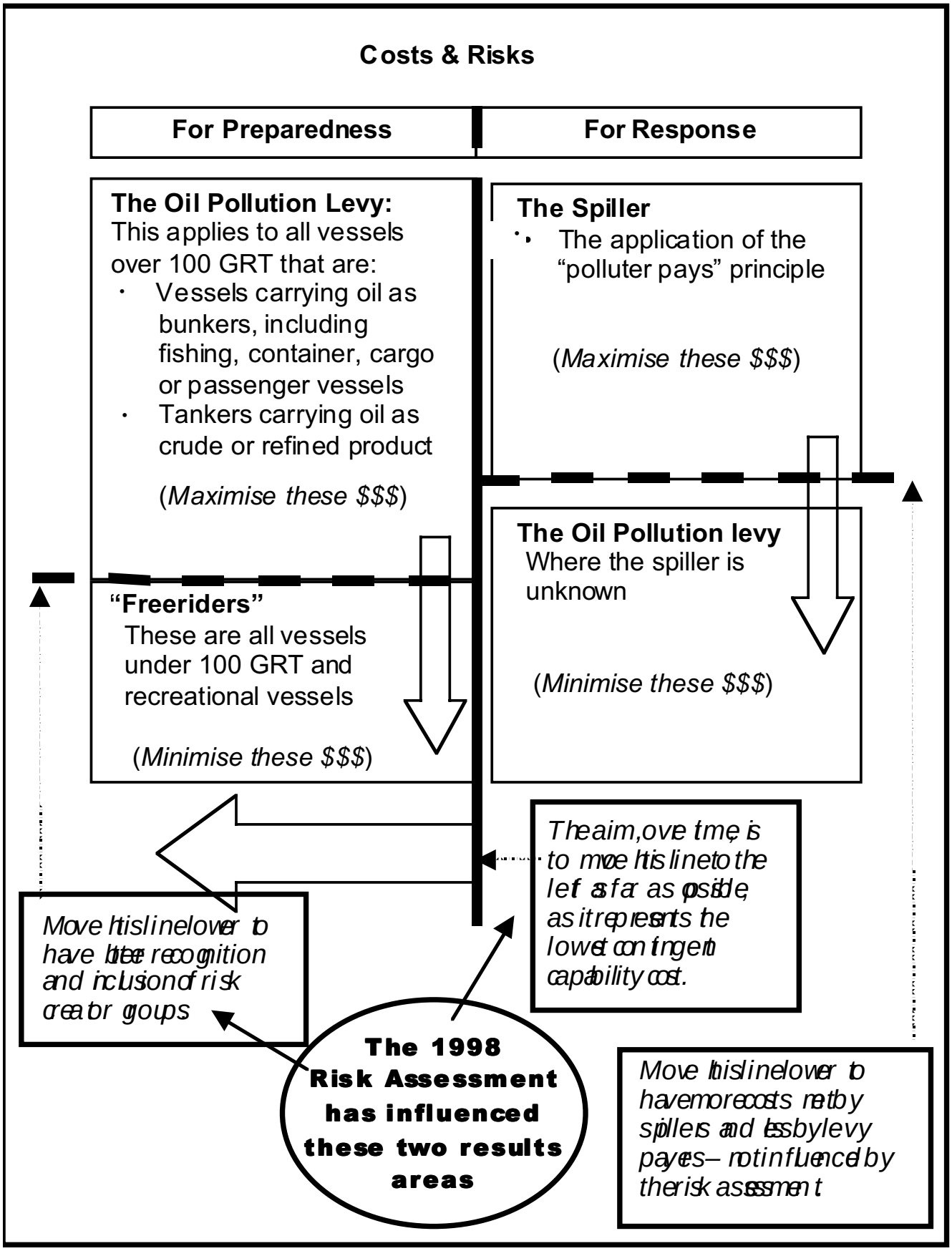

Figure 4: Marine oil spill risk assessment policy analysis model.

Other risk management initiatives

The MSA recognises that in order to ensure that risk is recognised and minimised, it must continually assess both the national experience and international developments.

In order to achieve the former the Oil Pollution Advisory Committee has established a subcommittee to assist the Director of Maritime Safety review spill response. It recently reviewed the MSA's Tier 3 response to the *Dong Won 529* incident and made a number of recommendations for changes to the Strategy and the National Plan. Many of those related to the plan have been implemented. Those related to the Strategy were included in the public consultation document last year and are likely to be incorporated into any revised Strategy.

MSA also maintains currency with international developments, through such traditional avenues as membership of the IMO and international reviews of incidents world-wide. One example of such a review which New Zealand is giving detailed consideration to is the recent report of Lord Donaldson into the "Command and Control: aspects of the *Sea Empress* incident in Wales. There appear to be many salutatory lessons from this incident and prudent risk management requires that they be assessed for relevance within New Zealand.

Finally, New Zealand has a special relationship with Australia, involving a bilateral memorandum of understanding for co-operation in oil spill response and preparedness. Australian marine oil spills have provided New Zealand with a very good opportunity to gain valuable experience, both in policy and operational issues.

Conclusion

New Zealand is moving to implement a cost-effective system for being prepared and able to respond to a marine oil spill of any size within its jurisdiction. The aim is to ensure the day-to-day costs, excluding response, are kept to a minimum while ensuring an ability to mount an appropriate response is maintained, i.e. contingent capability.

Risk assessment, where the risks of marine oil spill events and their consequences are detailed, is being used to:

- develop a cost effective response system that matches risk to minimise the impact of spill incidents; and
- develop a targeted prevention programme to reduce the probability of spill incidents.

The process is iterative. It involves developing a strategy which sets out policy and the overarching levels of preparedness. This leads to the regional and national contingency plans. Together the strategy and plans determine the overall cost of being prepared. This cost is funded from a levy on those industries that create the risk. The risk assessment is also used to apportion the amount of levy between and within each industry grouping so that an equitable cost burden result is obtained. However, each time a risk assessment is carried out the results will feed back into a strategy review.

The risk assessment is not the end of the story! New Zealand also needs to expend effort on ensuring persons and organisations who spill oil are made to pay for the cost of cleanup. No amount of risk assessment is going to affect successful cost recovery. It will take a co-operative effort from industry and government to ensure the polluter pays principle is given effect in both preparedness and response.

Authors

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