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| 30 June 2021 | |
| Report to | Department of Infrastructure, Transport, Regional Development and Communications |
| An indicative cost benefit analysis on Australia’s possible accession to the Nairobi Convention | |
| FINAL REPORT | |

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| Glossary |  |
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| Australian Maritime Safety Authority | AMSA | Australia's national agency responsible for maritime safety, protection of the marine environment, and maritime aviation search and rescue. |
| Convention on Limitation of Liability for Maritime Claims | LLMC Convention | A Convention relating to shipowners, allowing them to limit their liability to pay compensation for general ship-sourced damage. |
| Coastal waters |  | Coastal waters is a belt of water between the limits of the Australian States and the Northern Territory and a line 3 nautical miles seaward of the territorial sea baseline. Jurisdiction over the water column and the subjacent seabed is vested in the adjacent State or Territory as if the area formed part of that State or Territory. |
| Domestic commercial vessels | DCVs | A DCV means a vessel that is for use in connection with a commercial, governmental or research activity and undertakes only domestic voyages around Australia. The full definition is provided in Schedule 1 of the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012*. |
| Exclusive Economic Zone | EEZ | The EEZ comprises the area 200 nautical miles outwards from the baseline of the territorial sea. |
| Foreign Vessel |  | A vessel that does not have Australian nationality; and is not a DCV vessel The definition is contained in s14 of the *Navigation Act 2012*. |
| Gross Tonnage | GT | Gross tonnage is based on the moulded volume of all enclosed spaces of the ship. |
| Net Tonnage | NT |  |
| Internal waters |  | Waters within the limits of a state or territory. |
| The International Group Protection and Indemnity Insurance | P&I Clubs | The International Group of P&I Clubs comprises 13 clubs that provide marine liability cover (protection and indemnity) for approximately 90 per cent of global ocean-going tonnage. The clubs cover a wide range of liabilities, including wreck removal. Individual clubs are generally ‘mutuals’, owned and operated by their respective ship owners. |
| *Marine Safety (Domestic Commercial Vessel) National Law Act 2012* | The National Law | An Act for the certification, construction, equipment, design and operation of domestic commercial vessels inside Australia’s exclusive economic zone. |
| *Nairobi International Convention*  *on the Removal of Wrecks 2007* | Nairobi Convention | The Convention provides the legal basis for State Parties to remove, or have removed, shipwrecks that may have the potential to affect adversely the safety of lives, goods and property at sea, as well as the marine environment. |
| Nautical mile | nm | A nautical mile is a unit of distance equal to 1,852 metres. This value was adopted by the International Hydrographic Conference in 1929 and has subsequently been adopted by the International Bureau of Weights and Measures. |
| *Navigation Act 2012* | Navigation Act | An Australian Act relating to maritime safety and the prevention of pollution of the marine environment, and for related purposes. |
| Regulated Australian vessels | RAVs | A vessel is a regulated Australian vessel if under the *Shipping Registration Act 1981*, the vessel is registered, required to be registered or exempt under section 13 of that Act from that requirement; and the vessel is not a recreational vessel. |
| Regulation impact statement | RIS | An assessment seeking to assist government officials to move towards ‘best practice’ regulatory design and implementation. |
| State Party |  | A State which has consented to be bound by a treaty and for which the treaty is in force. |
| Territorial sea |  | The territorial sea comprises the area 12 nautical miles outward from the territorial sea baseline. |
| Liquefied Petroleum Gas | LPG |  |
| Liquefied Natural Gas | LNG |  |
| The Office of Best Practice Regulation | OBPR | It administers the Australian Government and intergovernmental RIS requirements |
| Benefit Cost Ratio | BCR |  |
| Net Present Value | NPV |  |
| International Maritime Organization | IMO |  |
| The Bureau of Infrastructure and Transport Research Economics | BITRE |  |
| Maritime Safety Queensland | MSQ |  |
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| 1. Executive summary |  |
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The Department of Infrastructure, Transport, Regional Development and Communications (the Department) commissioned ACIL Allen to provide an indicative cost benefit analysis on Australia’s possible accession to the Nairobi Wreck Removal Convention (Nairobi Convention).

The Nairobi Convention provides a uniform set of international rules for wreck removal. It also requires shipowners to hold insurance to cover the costs of wreck removal and provides countries with a right to claim costs directly from the ship insurer.

In August 2020, the Department released a discussion paper to inform an examination whether accession to the Nairobi Convention would benefit Australia. There are a number of submissions received in response to the Discussion Paper. In this context, the Department require a systematic quantification of potential net benefits related to the following policy options.

* Option 1: Retaining the existing framework under the *Navigation Act 2012*.
* Option 3: Acceding to the Nairobi Convention, applying it to RAVs and foreign vessels in the EEZ.
* Option 4: Acceding to the Nairobi Convention, applying it RAVs and foreign vessels in the EEZ and territorial sea.
* Sub-option 1: Applying the Nairobi Convention to Domestic Commercial Vessels.

The analysis reported in this report will assist the Department in advising the Minister on whether Australia should accede to the Nairobi Convention.

This report provides an indicative economic analysis of above options based on the available data, information, assumptions, and discussions with key stakeholders.

The economic analysis provided in this report is consistent with the OBPR Guidelines on the Regulatory Burden Measurement Framework.

Option 4 is acceding to the Nairobi Convention, and applying it to the EEZ and Territorial Sea replacing the current legislative framework provides relatively more net benefits compared with Option 1 where the existing framework remains and Option 3 where the existing framework remains in the Territorial Sea.

The advantage of the Nairobi convention is that they provide the holy trinity provisions of **strict liability** (no need to prove fault or negligence), **mandatory insurance** as a matter of the treaty law and **a right of action** against the insurer.

Due to the lack of data, net benefits of Sub-option 1 are not quantified. The regulatory and industry costs appear to outweigh the expected benefits from uniformity of laws for Domestic Commercial Vessels.

Summary results of the three policy options are provided below.

* 1. Option 3

The estimated net benefit of Option 3 relative to Option 1 is summarised in Figure ES 1.

The illustrative analysis indicates that if a wreck incident happens to a trading vessel in Year 1 in the EEZ, the estimated net benefits of accession to the Nairobi Convention under Option 3 relative to Option 1 over a ten-year period for:

— Bulk carriers would be around $33.4 million ($27.3 million at 7% discount rate).

* Container carriers would be around $4.6 million ($4 million at 7% discount rate).
* LPG tankers would be around $1 million ($1.1 million at 7% discount rate).

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| Figure ES 1 Net benefits of Option 3 relative to Option 1 over a ten-year period |
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| Source: ACIL Allen estimates from various assumptions |
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The estimated benefit cost ratio (BCR) of Option 3 for each vessel type is provided in Figure ES 2.

A BCR is an indicator showing the relationship between the relative costs and benefits of each policy option. The estimated BCRs shows that Option 3 has a BCR greater than one for all various vessel types considered. This indicates the estimated benefits outweigh the estimated regulatory and other costs of Australia’s accession to the Nairobi Convention in the EEZ.

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| Figure ES 2 Benefit Cost Ratio of Option 3 by vessel types |
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| Source: ACIL Allen estimates from various assumptions |
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* 1. Option 4

The estimated net benefit of Option 4 relative to Option 1 is summarised in Figure ES 3.

This indicates if a wreck incident happens to a vessel in Year 1 in either the Territorial Sea or the EEZ, the estimated net benefits of accession to the Nairobi Convention under Option 4 relative to Option 1 for Bulk carriers would be around $48 million ($38.2 million at 7% discount rate) and for Container carriers would be around $7.2 million ($6 million at 7% discount rate) over a ten-year period.

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| Figure ES 3 Net benefits of Option 4 relative to Option 1 over a ten-year period |
| Source: ACIL Allen estimates from various assumptions |
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The estimated BCRs of Option 4 is provided in Figure ES 4. As per Option 3, the estimated BCRs are greater than one for all vessel types considered. This indicates the estimated benefits outweigh regulatory and other costs of possible Australia’s accession to Nairobi Convention in the Territorial Sea and in the EEZ. Further, the estimated BCRs for Option 4 are higher than those estimated for Option 3, which indicates that this is a more preferred option.

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| Figure ES 4 Benefit Cost Ratio of Option 4 by vessel types |
| Source: ACIL Allen estimates from various assumptions |
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* 1. Sub-option1

There is no information available regarding the current extent of legal disputes and the potential reduction in legal disputes associated with moving from the current state-based regulatory regimes to a harmonised Commonwealth regime based on the Nairobi Convention. Similarly, it is uncertain whether there will be any additional cost recovery benefits associated with Sub-option 1 compared to the current regulatory regimes.

Further research may be warranted to determine whether this regulatory Option will provide economic benefits and whether any such benefits outweigh the estimated compliance costs estimated in this study. Until such research is completed, the annual regulation burden associated with Sub-option 1 is deemed to outweigh any additional benefits associated with the uniformity of laws across Australian waters and vessels.

* 1. Environmental impacts

Wrecks can cause massive environmental damages in terms of contamination of water and coastal amenity. The environmental costs and avoided benefits are difficult to quantity and they depend on the number of factors. However, AMSA is responsible for minimising any such environmental costs, and this responsibility will not change as a result of accession to the Nairobi Convention.

Under the Nairobi Convention, a shipowner must remove the wreck and AMSA may act when a wreck constitutes a hazard which may reasonably be expected to result in major harmful consequences to the marine environmental damage to the coastal areas, port activities, fisheries, tourist activities and other economic interest of areas concerned, including conservation of marine living resources such as great barrier reef, offshore and under water infrastructure.

This wider definition under the Nairobi Convention would allow the Australian Government to have clear powers to act upon any threat to the environment. It would also allow the Australian Government to respond quickly to lessen the impacts

The Nairobi Convention would also provide an incentive for shipowners to maintain their ships as insurers would be likely to consider the quality of ship when calculating the insurance premiums.

Environmental impacts are assumed to be the same between all Options so have not been quantified in this study.

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## The Nairobi Convention

The Nairobi International Convention on the Removal of Wrecks 2007 (Nairobi Convention) seeks to support existing legal frameworks governing the removal of wrecks in waters of a State Party. It provides an internationally agreed legal basis for an affected State Party to remove a wreck where it poses a hazard. These provisions can be extended to apply within the Territorial Sea, providing an alternative framework to any domestic legislation that currently operates. The Nairobi Convention’s removal powers extend to hazards created by an object lost at sea from a ship, including lost containers. It also creates a legal regime that holds shipowners financially accountable for wrecks, mandates wreck insurance for vessels 300 Gross Tonnes (GT) and above, and allows the affected State Party to claim wreck removal and other related costs (such as locating, marking, removing, destroying or sinking) directly from the ship’s insurer.

Currently 77% of global shipping tonnage is flagged in countries that are a State Party to the Nairobi Convention, including some of Australia’s top trading partners such as China, South Korea, India, and the United Kingdom.

Australia's current laws on wreck removal and cost recovery vary depending on type and location of ship involved.

At the Commonwealth level, the Navigation Act gives the Australian Maritime Safety Authority (AMSA) power to engage with the removal of wrecks from regulated Australian vessels (RAVs) and foreign vessels.

* For RAVs, AMSA's powers apply when the wreck is in Australia's Territorial Sea or Exclusive Economic Zone (EEZ).
* For foreign vessels, AMSA's powers apply to those in Australia's Territorial Sea.

If the wreck is considered ‘marine pollution’, AMSA can also recover costs linked to foreign vessels in the EEZ under the Protection of the Sea (Civil Liability) Act 1981.

Australian state and territory laws also give relevant authorities powers of removal and cost recovery against domestic commercial vessels (DCVs) and recreational vessels that travel in State waters or share a state connection.

Australian water boundaries in relation shipwreck removal powers are shown in Figure 1.1.

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| Figure 1.1 Australian waters |
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| Source: DISER |
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## Problem under consideration

Recent incidents in Australia have highlighted the importance of having strong and clear laws for wrecks and debris falling from operating ships.

For example, on 1 June 2018 the container ship YM Efficiency lost 81 containers overboard east of Newcastle. AMSA worked together with NSW Road and Maritime Services to find the lost containers and their contents and contracted Ardent Oceania for their removal and disposal. The recovery operation of 63 containers was successfully completed on 8 May 2020, at a total cost of about $17 million. The owner, Yang Ming, has refused to take responsibility for the containers and their removal costs and disputes AMSA’s powers in directing them to do so. AMSA has since started legal action against the owner Yang Ming.

There was a similar incident on the 24 May 2020, when 50 containers fell overboard southeast of Sydney. AMSA has pressed charges against the ship's master and is seeking security from the insurers to cover clean-up and removal costs, estimated at $22 million.

The Nairobi Convention offers an alternative to the current fragmented framework in Australian waters. An International Maritime Organization (IMO) treaty, the Nairobi Convention provides a set of uniform international rules to ensure prompt and effective wreck removal, including for objects lost at sea, such as shipping containers. It also sets up a compulsory insurance scheme, which allows State Parties to more easily recover costs. Australia's accession to the Nairobi Convention could create a single framework for all the ship types located in the EEZ, with Australia able to extend its application to wrecks located in the Territorial Sea.

Had the Nairobi Convention been in force at the time of the *YM Efficiency* incident, the incident would have been covered by the Nairobi Convention and there would have been clear liability on the owner to remove the wrecks through the shipowner’s insurer. Consequently, the Australian Government would have stood a better chance of being able to recover all costs associated with the wreck location and removal operations.

In August 2020, the Department released a Discussion Paper to inform an examination whether accession to the Nairobi Convention would benefit Australia. A number of submissions were received in response to the Discussion Paper, with the overwhelming majority of submissions supporting the accession to the Nairobi Convention.

## Rationale of government intervention

Australia depends on access to competitive, efficient and effective shipping, which carries over 98% (by mass) of our international trade. Much of Australia’s maritime trade is dominated by export of bulk commodities that compete in highly competitive, globalised markets (BITRE 2019).[[1]](#footnote-1) The reliability and efficiency of maritime transport directly impacts Australia’s major commodity exports and, by extension, the Australian economy and standards of living.

Recent incidents illustrate two gaps in the Australian Navigation Act, which currently[[2]](#footnote-2) hamper the Australian Government’s ability to recover costs where:

* a foreign vessel creates a wreck within Australia’s EEZ.
* an object is sunken, stranded or adrift at sea from any foreign or regulated Australian vessel, including shipping containers (the most common form of wreck).

These two gaps pose a significant problem for the Australian Government as most wreck incidents involve lost shipping containers from foreign-flagged vessels in the EEZ and Territorial Sea. As with the *YM Efficiency*, AMSA must then attempt to recover wreck removal costs through potentially lengthy and expensive court actions under the current maritime pollution framework.

The Nairobi Convention will provide a set of uniform international rules to remove or have removed wrecks that may have the potential to adversely affect the safety of lives, goods and property at sea, as well as the marine environment. It expands the definition of wrecks to include objects lost at sea, and provides criteria for determining the hazard posed by wrecks including proximity to shipping routes, vulnerability of port facilities, and potential for damage to the marine environment. The Convention will also clarify the rights and obligations regarding the identification, reporting, locating and removal of wrecks, and impose liability on the registered owner of the vessel for the costs of locating, marking and removing the wreck.

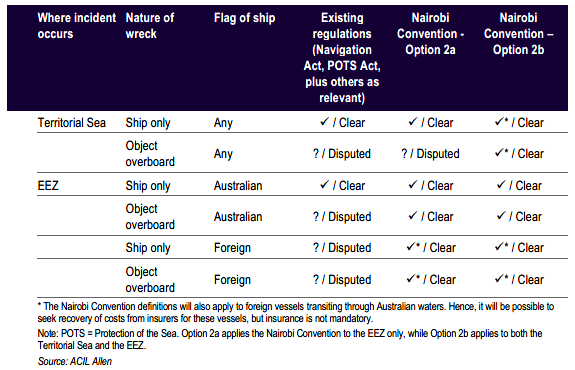
A number of countries have already ratified the Nairobi framework. The Convention provides an internationally recognised framework of rights, duties and obligations on States, shipowners, insurers and other parties regarding the removal of wrecks deemed to be a hazard by an affected State.

Incidents involving shipping have the potential to interrupt trade, threaten other vessels, incur significant loss of life and property, and damage the marine environment. Further, the Australian Government holds a polluter financially responsible for their actions when they threaten navigational safety, Australia’s unique marine environment or maritime businesses, including wrecks.

To recover costs from shipowners and ensure the taxpayer is not the insurer of last resort, a clear and firm legal framework is needed. Accession to Nairobi Convention would provide the Australian Government through AMSA with a clear avenue to the shipowner and the insurer to pursue location, marking and removal of wrecks and objects lost at sea.

**Table 1.1** provides a summary of the circumstances where the Australian Government has clear powers under existing Acts, and if Australia accedes to the Nairobi Convention.

Table 1.1 Ability for the Australian Government to recover costs associated with wrecks?

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## Policy options

The Department requested the following policy options to be analysed which considers the financial and regulatory impacts of the options on the shipping and insurance industry stakeholders, other related maritime and coastal stakeholders, and the Australian community:

* **Option 1**: Retaining the existing framework under the *Navigation Act 2012*.
* **Option 3**: Acceding to the Nairobi Convention, applying it to RAVs and foreign vessels in the EEZ.
* **Option 4**: Acceding to the Nairobi Convention, applying it RAVs and foreign vessels in the EEZ and territorial sea.
* **Sub-option 1**: Applying the Nairobi Convention to Domestic Commercial Vessels.

The analysis in this report will inform a Regulatory Impact Statement (RIS) on Australia’s accession to the Nairobi Convention.

## Report structure

The remaining sections of this report are as follows:

* *Chapter* 2 provides the high-level views of selected stakeholders consulted for this study.
* *Chapter 3* outlines advantages and disadvantages of policy options, key data sources and assumptions for options analysed.
* *Chapter 4* provides the estimates of costs and benefits, including sensitivity testing and distribution analysis.

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| Stakeholder consultation | 2 |
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A key element of ACIL Allen’s approach to providing economic analysis of Australia’s possible accession to the Nairobi Convention is to discuss the implication of costs and benefits with the key industry stakeholders. A summary of the discussions is provided in this chapter.

## Shipping Australia

***Shipping Australia is a peak industry body representing the interests of shipowners and shipping agents on shipping policy and safe environmentally sustainable ship operations***

Shipping Australia supports Australia’s ratification of the Nairobi Convention in the EEZ and the Territorial Sea.

There is stringent Port State Control in Australia. However, having a uniform regime in the EEZ and the Territorial Sea is important for the shipping industry and for the efficiency of sea going trade.

The issue with the current situation is the uncertainty over whether AMSA has the power to recover costs of location, marking and salvage of events such as the grounding of the *YM Efficiency* in Newcastle Harbour in 2019. AMSA encountered delays as it pursued the Yang Ming owners over the cost of recovery of containers and debris washed ashore or floating below the surface of the ocean.

The Nairobi Convention provides a broader definition of a wreck to include cargo removal and objects lost at sea that are not currently covered under the Navigation Act.

The Nairobi Convention would also extend the power of AMSA to recover from the ‘legal owner’ any expenses incurred by AMSA in connection with locating, marking, removing, destroying or sinking a wreck to the EEZ.

The definition of owner is important. The Nairobi Convention defines ‘the owner as the person or persons registered as the owner of the ship or, in the absence of registration, the person or persons owning the ship at the time of the maritime casualty’. However, in the case of a ship owned by a State and operated by a company which in that State is registered as the operator of the ship, “registered owner” shall mean such company.

Australia’s ratification of the Nairobi Convention is not likely to have an impact on the likelihood of future groundings, wrecks or objects lost at sea. Australia already has a strict regulatory regime for international shipping operations and port state control. The main benefit would be to provide a clearer power for AMSA to approach the shipping owner and the insurance companies and greater certainty of recovery of costs from the insurance industry.

Greater consistency both internationally and in Australia’s EEZ and Territorial Sea was important for regulation of wrecks globally and in Australian waters. All international vessels over 500 GT must maintain a continuous synopsis record under the International Convention for the Safety of Life at Sea (SOLAS) of the history of the ship covering identity and certification and performance details. Accordingly, consistency between jurisdictions and regions is important for efficiency and safety overall.

For that reason, among others, Shipping Australia supports ratification of the Nairobi Convention in both the EEZ and Territorial Waters.

### Benefits and costs

Accession to the Nairobi Convention is not likely to change the overall likelihood of groundings and wreck events in the future. As mentioned earlier Australia has a robust regulatory regime and strong port state control.

The main benefit would be to give AMSA a direct line to the shipowner and insurance company in the event that a grounding or capsize occurred and allow it to approach the insurers directly to recover the costs of locating, marking and removal of wrecks and objects lost at sea.

As set out in AMSA’s Cost Recovery Statement, AMSA can recover the cost of locating, marking and removal of wrecks in the Territorial Sea under the Navigation Act. If this cost cannot be recovered from the owner or insurer, AMSA would have to recover cost it incurred through the Protection of the Sea levy. The implications of this arrangement for the levy and the fund would be major if a significant grounding or capsize event occurred. The Nairobi Convention provides a cleaner, simpler and more certain approach to recovering costs.

There are unlikely to be any significant transition costs for the international shipping industry as majority of ships entering Australian Waters will be insured anyway.

Shipping Australia has no data that would enable it to quantify the likely costs and benefits of Australia ratifying the Nairobi Convention.

## The IGP&I Clubs, and the ICS

***The International Group of Protection and Indemnity Clubs: The IGP&I comprises 13 Protection & Indemnity Clubs which between them provide marine liability for around 90% of the world’s ocean-going vessels***

***The International Chamber of Shipping (ICS) is the global trade association for the shipping industry with membership comprising national shipowner’s associations whose members operating around 80% of the World’s merchant tonnage. It represents national shipowners, Maritime industry Associations (including Shipping Australia) and all sectors and all trades.***

Under the Nairobi Convention, the Clubs pick up the cost of wreck removal in countries that have ratified the Convention. The Convention allows for the right of direct action by the State in relation to recovery of costs for wreck removal. It simplifies the process and avoids court action. The members of the Club pay for the costs of third-party damage and removal.

Under the Nairobi Convention owners of ships above 300 GT are required to maintain insurance or financial security to cover wreck removal costs up to the limits of liability under the Nairobi Convention of Limitation of Liability for Maritime Claims 1976 (LLMC Convention). Under this arrangement Club members issue Certificates of financial security (the Blue Card) that is held by the Flag State that ships are required to carry to confirm these insurance arrangements.

The IGP&I clubs and the ICS support Australia’s accession to the Nairobi Convention in the EEZ and the Territorial Sea. However, the ICS does not support the decision by Australia to exclude the limitation of liability that is provided under the LLMC Convention.

### General arrangements

The IGP&I and the ICS noted the following in relation to the argument for Australia’s ratification of the Nairobi Convention in the EEZ and the Territorial Sea.

* The Nairobi Convention provides a framework for uniformity of wreck recovery law worldwide which in turn would contribute to the efficiency of sea going world trade.
* From the insurer’s perspective, 90% of third-party insurance is covered by the IGP&I groups. They look to the Club to provide the Blue Card that confirms certified insurance for ships
* From the government’s perspective the arrangement provides certainty for recovery of reasonable and proportionate costs of removal of wrecks. The mandatory insurance requirement gives some assurance to Governments of recovery of costs and gives a right of direct action against the insurer.
* Under the arrangement, governments can check through a vessel search that the vessel is insured through a reputable insurer.
* The wider definition of a wreck would also address the problem of recovery of locating, marking and removal of objects lost at sea in addition to removal of wrecks.

### Benefits

* Benefits were hard to quantify. There would be administrative efficiencies from every jurisdiction having the same regulations in place for wreck removal. Applying the Nairobi Convention to the Territorial Sea would increase this efficiency gain.
* There would also be efficiency gains for shipowners. The Convention requires shipowners to maintain insurance through a simple single certificate leading to certainty for governments and businesses alike.
* Ratification of the Nairobi Convention was not likely to result in significant change in shipping behaviour or reduce the incidence and frequency of groundings or the future likelihood of wreck events or objects lost at sea.
* The ultimate impact is that for the most part Government, in this case AMSA, would not incur any costs from such actions up to the limits of the LLMC. In this case, however, Australia has opted out of the liability limits under the LLMC.

### Costs

* The arrangement would not involve significant additional administrative burden for the shipowners.
* The arrangement, if applied in Australia, is unlikely to result in an increase in the cost of insurance for international vessels that are already required to carry insurance for entry to Australian ports.

In summary the benefits of Australia ratifying the Nairobi Convention would be:

* strict liability arrangements for ships sailing in Australian waters
* compulsory insurance for these vessels
* rights of direct action from shipowners and insurers.
* if enforced the State should never have to carry the costs of a wreck event.

While it was difficult to quantify average annual benefits, the costs of a major wreck events could be extremely high. To get an idea of these costs it would be useful to examine the costs of such events in recent years.

## Some examples of shipwrecks

Some of the examples provided during the stakeholder discussion are summarised below. While these examples are not necessarily good examples of wrecks that would have been impacted by accession of the relevant state to the Nairobi Convention, they do provide good examples of very high cost wrecks.

### The Golden Ray capsize

* + The MV Golden Ray was a 200-metre-long car carrier that capsized on 8 September 2019 in St. Simons Sound near the Port of Brunswick in Georgia, United States. The vessel was eventually declared a total loss and is being removed as scrap.
  + The vessel capsized in coastal waters.
  + The insurer was North of the England P&I club
  + The total cost of salvage is expected to be of the order of US$400 million
  + Fire cost recovery could increase this by around US$100 million.

### Napoli salvage[[3]](#footnote-3)

* + The Napoli, a 62,000 tonne container ship enroute from Antwerp to Durban, South Africa, ran into a violent storm off Brittany in 2007.
  + The vessel was deliberately beached of East Devon UK.
  + A total of 114 containers were lost from the deck of the ship. Eighty were washed ashore. Most were later recovered.
  + total oil spilled: 302 tonnes (estimated)
  + duration of incident: 924 days (2 years, 6 Months and 12 days)
  + Under UK law at the time, which predates the entry into force of the Nairobi Convention, the owner could have limited liability to appx £14 million GBP. The vessel was eventually dismantled in situ scrapped at an estimated cost of around $240 million USD to the owners/London P&I Club.

### Concordia

* + The Concordia ran aground and capsized the cost of Tuscany.
  + The cost of the salvage bill for Carnival Cruise, the British-American company that owns the operator, Costa Crociere, will be about €1.5 billion (US$2 billion).

### Rena

* + The Rena container ship grounded on the Astrolabe Reef in the Bay of Plenty while approaching Tauranga Harbour, NZ in 2011.
  + The salvage operation cost NZ $700 million.

### Tricolor[[4]](#footnote-4)

Cargo ship accident of the MV Tricolor, the 50,000 tonne, £25.1 million ($39.9m) worth Norwegian-flagged vehicle carrier was involved in three English Channel collisions within a fortnight in 2002, resulting in massive damage, marine pollution and probably the biggest loss in auto exporting industry.

On Dec 14, 2002, in the early morning’s thick fog, on its way from Zeebrugge to Southampton, the MV Tricolor, with a load of almost 3,000 vehicles, collided with a 1982 Bahamian-flagged container ship named Kariba, about 20 miles north of the French coast in the English Channel. Albeit scathed enormously above the water line, the Kariba continued on its way on while the MV Tricolor remained wedged on her side in 30 metres of deep waterway.

No lives were lost as the crew 24 persons onboard were rescued unharmed by the Kariba. But approximately 2,862 cars and 77 units of RORO cargo, consisting mainly tractors and crane parts, could not be salvaged.

The shipping lane, being one of the busiest ones, had been buoyed off and guarded by the French police vessels Glaive and HMS Anglesey, in order to alert other ships to the MV Tricolor’s presence. Despite that, only two days later a cargo ship, Nicola, followed by another vessel, Vicky, carrying 70,000 tonnes of highly flammable gas oil, crashed into the wreck of the MV Tricolor on Jan 1, 2003, after failing to heed to several French naval warnings. On Jan 22 the third unfortunate accident succeeded when a salvage tug knocked a safety valve off the Tricolor, resulting in massive oil spill.

Besides the heavy loss on the economy, including the estimated operation cost of around £25m,this event contributed to marine pollution and environmental contamination by spilling a large quantity of oil which affected seabirds. The Royal Society for the Protection of Birds estimated more than 1,000 birds were found dead or damaged by the oil of MV Tricolor.

## Summary

The above-mentioned events provide an indication of the possible costs of a major event if it occurred in Australian waters particularly in environmentally sensitive areas.

The additional administrative costs for the IGP&I members would not be significant and it is unlikely to increase the cost of insurance for international vessels operating in Australian waters.

Large casualty events including major pollution incidents, groundings and other events can lead to increases in the cost of insurance and reinsurance, but this is not directly attributable to the IMO liability conventions. The IG representatives were not able to estimate the fluctuation in these costs. Marine insurance claims are long-tail events, and it can take many years before the full quantum of claims is established.

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| Data and assumptions | 3 |
|  |  |

## Approach

ACIL Allen’s approach to analysing the costs and benefits of Australia’s accession to Nairobi Convention under various policy options is consistent with the requirements set out in the Department of Prime Minster and Cabinet’s Office of Best Practice Regulation (OBPR).[[5]](#footnote-5)

### Data and information

Basic maritime transport data has been assembled from publicly available data sources – BITRE, AMSA, IMO, UNCTAD, ABS and others as inputs to the CBA.

* The data include the number of principal vessel types (oil tankers, bulk carriers, general cargo, containerships and others), ownership, flags of registration, annual throughput, historical wrecks data, and maritime insurance.
* An in-depth review of the documents provided by the Department, recent Discussion Paper Draft RIS, and submissions to the discussion paper and other international literature
* Desktop research and analysis on the costs and benefits of accession to the Nairobi Convention by other State Parties. These include:
  + A duty on the ship’s master or operator to report to the “Affected State” a maritime casualty resulting in a wreck and a duty on the Affected State to warn mariners and the States concerned of the nature and location of the wreck, as well as a duty on the Affected State that all practicable steps are taken to locate the wreck. AMSA has provided key steps and costs involved in shipwreck removals in Australian waters.
  + Criteria for determining the hazard posed by wrecks, including depth of water above the wreck, proximity of shipping routes, traffic density and frequency, type of traffic and vulnerability of port facilities. Environmental criteria such as damage likely to result from the release into the marine environment of cargo also included.
  + Measures to facilitate the removal of wrecks, including rights and obligations to remove hazardous wrecks, which set out when the shipowner is responsible for removing the wreck and when the Affected State may intervene.
  + Liability of the owner for the costs of locating, marking and removing wrecks - the registered shipowner is required to maintain compulsory insurance or other financial security to cover liability under the Nairobi Convention.
  + Settlement of disputes.

### Stakeholder consultations

See Chapter 2 for stakeholder consultations.

### Undertaking cost benefit analysis

The Australian Government is committed to the use of cost–benefit analysis (CBA) to assess regulatory proposals and encourage better decision making. A CBA involves a systematic evaluation of the impacts of a regulatory change, accounting for all the effects on the community and economy—not just the immediate or direct effects, financial effects or effects on one group. It emphasises valuing the gains and losses from a regulatory proposal in monetary terms as far as possible. The methodology framework identifies all the elements that could be included/considered when analysing the four policy options. This framework is summarised in Figure 3.1. With this framework, this study aims to capture all the analytical elements pertinent to the policy options being considered in Australia’s possible accession to Nairobi.

|  |
| --- |
| Figure 3.1 Economic analysis framework |
|  |
| Source: ACIL Allen |
|  |

This study followed key steps (see Figure 3.2) outlined in the OBPR’s CBA notes.[[6]](#footnote-6)

|  |
| --- |
| Figure 3.2 Key steps in CBA |
|  |
| Source: , <https://pmc.gov.au/resource-centre/regulation/cost-benefit-analysis-guidance-note>. |
|  |

The CBA involve analysing the costs, benefits, and other impacts of the proposed policy options on shipowners and operators, marine business, government, the environment and the community as a result of accession to the Nairobi Convention.

Costs and benefits are examined from the perspective of the Australian community as a whole to help identify the policy option with the highest net benefit. This study recognises that regulatory impact statements address the wellbeing of Australian society as a whole, and not on the welfare of any one singular group. However, it also recognise that accurately reflecting how changes will impact singular groups is an important part of evidence-based decision making.

Notably, the analysis focus is on the incremental (or marginal) benefits and costs incurred as a result of accession to the Nairobi Convention, not the total costs and benefits under each option.

* Analysis of benefits: The proposed alternatives to the Navigation Act could involve a range of benefits. Some of these benefits will be attributable to the Australian Government (strict liability arrangements for ships sailing in Australian waters, compulsory insurance for these vessels, rights of direct action from shipowners and insurers, if enforced the State should never have to carry the costs of a wreck event), while others will be attributable to shipowners (such as less complexity, less judicial costs).
* Analysis of costs: Similar to the benefits, the proposed regulatory changes will impose some costs on industry. These include regulatory costs on the shipowners in relation to the annual insurance certificate from a Member State, additional compliance and additional premiums.
* Net impact assessment: The results of a cost-benefit analysis presented in the next chapter facilitate the identification of the preferred option. The following metrics for each policy option are presented in the next chapter to evaluate the proposed policy options of potential accession of Australia to the Nairobi Convention.
  + Net Present Value (NPV) — the NPV is the sum of the discounted stream of costs and benefits.
  + Benefit-Cost Ratio (BCR) — the BCR is calculated by dividing the present value of benefits by the present value of costs and can be interpreted as every dollar of costs delivers ‘X’ dollars of benefits.

Following the OBPR guidelines, the costs and benefits are calculated using a central discount rate of 7% real. Further, to assess the sensitivity of the results to the discount rate, this study also conducts a sensitivity analysis of the results using a lower bound discount rate of 3% and an upper bound discount rate of 10%.

## An assessment of policy options

Based on the Department’s 2020 Discussion Paper[[7]](#footnote-7) and industry stakeholder responses the DITRDC prepared a DRAFT RIS. A summary of advantages and disadvantages of each option for quantification purposes are summarised in Table 3.1.

Table 3.1 Advantages and disadvantages of proposed policy options

|  | | Advantages | Disadvantages | Economic impacts |
| --- | --- | --- | --- | --- |
| **Option 1: Retaining the existing framework under the Navigation Act 2012** | | | |
| * Business as usual with no changes to existing processes, policies and procedures, and no implementation costs for industry | | * The Navigation Act will continue to apply only to wrecks of foreign vessels when located in Australia’s territorial sea, noting this is the maritime zone with the greatest number of environmentally sensitive areas. * The definition of ‘wreck’ in the Navigation Act will continue to exclude goods or cargo fallen overboard from a ship that is not itself wrecked, derelict, stranded, sunk, abandoned, foundered or in distress. As noted above, the last 3 wreck incidents in Australia have exclusively involved the loss of cargo overboard. * Issues regarding cost recovery for wreck removal will continue to arise when a DCV or recreational vessel creates a wreck in the EEZ. * The Navigation Act contains no power allowing the AMSA to directly approach the ship’s insurer to recover wreck related costs. * There is no mechanism to ensure ship owners have appropriate and accessible assets in place to fund a wreck removal operation before an incident occurs. For example, while AMSA is entitled under s229(1)(e) Navigation Act to recover from the ship owner the expenses incurred in removing the wreck in the territorial sea, a practical difficulty arises in respect of a foreign ship owner with no assets in Australia, as was the case of the MV Tycoon. * While there is currently an unlimited right of cost recovery for wreck removal, this has limited benefits where a foreign ship owner is responsible for the wreck because: * service of proceedings (e.g. to recover costs) cannot easily be undertaken in a foreign jurisdiction * there is uncertainty regarding the enforcement of any judgment against a ship owner in a foreign jurisdiction. * The current alternative legislative options will not assist the Australian Government in recovering wreck related costs in the absence of marine pollution. | **Costs**:   * Diseconomies of scope and narrow definition * Limited legal rights * Complex judicial processes and procedures (costs to both AMSA and shipowners) * Financial security costs to shipowners * Relatively low-cost recovery by AMSA |
| **Option 3: Acceding to the Nairobi Convention, applying it to RAVs and foreign vessels in the EEZ.** | | | |
| * It would ensure that Australia’s laws on the rights and obligations for shipowners, Flag States and the Australian Government are consistent with modern international rules. * Expanded and uniform powers for AMSA in the EEZ, while not restricting the action Australia can take in the Territorial Sea. * The definition of ‘wreck’ under the Nairobi Convention is broader than the Navigation Act and covers goods or cargo that have fallen overboard from a ship, including shipping containers. * The Nairobi Convention holds the ship’s owner strictly liable for the costs associated with a wreck, making claims more straightforward and easily resolved. * The Nairobi Convention allows for the assessment of economic impacts as well as health and infrastructure considerations. * The Nairobi Convention provides greater opportunities for cost recovery through direct access to the insurers of ships 300 GT and above, up to the wreck removal limits in the LLMC Convention. * The costs recoverable under the Nairobi Convention are potentially greater than those under the Navigation Act. | | * The application of the Nairobi Convention framework in the EEZ, while retaining the Navigation Act provisions in the Territorial Sea would create a dual regulatory system with differing rights and obligations, depending on the location of the casualty and/or jurisdiction involved. This may result in confusion for the regulatory, compliance officers and industry. * Shipowners with foreign vessels or RAVs travelling through Australia’s EEZ, whether intending to berth in Australia or not, will be required to have wreck removal insurance. This may be a new cost to some parts of industry who are in the 23 % of the global fleet who are not flagged to a State Party or have not undertaken a voyage to a State Party. * The marking and removal of a wreck can be pursued only after the affected State Party has determined it poses a ‘hazard’. If there is no hazard, the shipowner will not be liable for any wreck removal activities. * An affected State Party has limited ability to influence the salvage operation if it is being undertaken by the shipowner in the EEZ. The shipowner chooses the salvor. The affected State Party is able to set conditions on the wreck removal to the extent necessary to ensure it proceeds in a manner consistent with considerations of safety and protection of the marine environment. * An affected State Party’s right to recover costs is limited to actions taken within three years of a wreck being determined to pose a hazard, and a maximum of six years from the date of the maritime casualty * The requirement for removal actions to be ‘proportional’ is vague and may lead to disputes between shipowners and the affected State Party. | **Benefits**:   * Broader scope and definition at least in EEZ * Legal rights in EEZ * Making claims more straightforward and easily resolved in EEZ * Relatively more cost recovery by AMSA in EEZ for foreign vessels * Avoided financial security costs   **Costs:**   * Dual regulatory system * Administrative costs * Additional cost to the shipping industry - annual insurance certificate from a Member State * Definitional differences in territorial waters and EEZ cause complexity. |
| **Option 4: Acceding to the Nairobi Convention, applying it RAVs and foreign vessels in the EEZ and territorial sea.** | | | |
|  | * Shipowners to maintain insurance to cover wreck-related costs. * It would be more important in a Territorial Sea context as it includes a greater number of environmentally sensitive areas * Consistent application of the Nairobi Convention between the EEZ and the Territorial Sea promotes increased safety of navigation, boosted environmental protection and harmonised liability and compensation regimes. * The financial security requirement in the Navigation Act for the owners of foreign vessels in the Territorial Sea will be simplified, as the insurance certificate would be sufficient. * Foreign vessels transiting through Australia’s Territorial Sea in the Torres Strait would need to comply with these requirements, even if they are not intending to berth in Australia | * The Convention imposes time limits on cost recovery actions where none currently exist in the Navigation Act * Australia would lose some flexibility in designing the regulatory framework in the Territorial Sea, given it must be consistent with the requirements of the Nairobi Convention. * While the Nairobi Convention would apply in the Territorial Sea, it would continue not to apply in coastal waters, from the Territorial Sea baseline to 3 nautical miles, as they are under state and territory control through the Offshore Constitutional Settlement | **Benefits**:   * Broader scope and definition in both Territorial Sea and EEZ * Legal rights to AMSA in both EEZ and Territorial Sea * Relatively more cost recovery by AMSA * Improved consistency relative to Option 1 and Option 3 * Simplified insurance requirements * Avoided judicial and legal costs * Avoided financial security costs   **Costs:**   * Administrative costs * Additional cost to the shipping industry - annual insurance certificate from a Member State * Additional compulsory insurance costs |
| **Sub-option 1: Applying the Nairobi Convention to Domestic Commercial Vessels.** | | | |
|  | * Australia would have a single wreck removal framework covering all vessels in the EEZ and the Territorial Sea regardless of the type of commercial vessel and the type of voyage they were undertaking. * A single regulatory framework would exist to cover DCV-related wrecks wherever it may occur, including in state/territory-controlled waters. | * The requirement for DCVs 300 GT and over to hold wreck-related insurance would be a new cost for owners as they are unlikely to hold an insurance policy from P&I Clubs and so will not already be covered. However, it is estimated this requirement will impact 251 vessels out of the approximately 27,000 DCVs, representing 0.9 per cent of the sector. DCV owners would be able to pass on any additional costs to the public, the freight forwarder or the charter party or recover any wreck recovery-related costs through their contracts with the operator. * It is likely DCV owners would seek fixed premium insurance policies, rather than a policy from a P&I Club. * Incorporating DCVs under the Nairobi Convention framework would create a legislative gap that would need to be addressed in any model law. The Convention does not cover abandoned or dumped ships that may not be a result of an identifiable maritime casualty. | **Benefits:**   * Broader scope and definition in both Territorial Sea and EEZ for DCVs * Improved consistency and single regulatory framework   **Costs**:   * Insurance costs will be higher for about 250 vessels |
| Source: ACIL Allen Analysis based on Department’s Discussion Paper 2020. | | | |
|  | | | |

## Incidence of costs and benefits

An incidence of costs and benefits of accession to the Nairobi Convention is summarised in Table 3.2.

Not all the costs and benefits are quantified in this study (red text items in Table 3.2). This is due to the lack of data and empirical evidence of the impacts. While not quantified, they are briefly discussed.

Administrative costs are costs incurred by vessel owners primarily to demonstrate compliance with the regulation. Administrative costs include the time taken to demonstrate compliance with the regulation. Some examples of administrative costs are:

* costs of making, keeping and providing records, particularly carrying an annual insurance certificate from a Member State
* costs of notifying the government of a shipwreck
* compliance costs associated with financial costs, including the insurance costs incurred in complying with the Nairobi Convention.

There would be administrative efficiencies from every jurisdiction having the same regulations in place for wreck removal. Applying the Nairobi Convention to the Territorial Sea would increase this efficiency gain.

There would also be efficiency gains for shipowners. The Convention requires shipowners to maintain insurance through a simple single certificate leading to certainty for governments and businesses alike.

Table 3.2 Incidence of costs and benefits

| Costs | | Who will be affected | Benefits | Who will benefit |
| --- | --- | --- | --- | --- |
| Change in regulations | Australian Government  Shipowners  Ship insurers | Expanded definition and broader scope | AMSA and shipping industry |
| Cost recovery | Australian Government | Improved cost recovery | Australian Government |
| Compliance costs: |  | Administrative efficiencies | AMSA  Shipowners |
| * Administrative costs * Financial costs * Delay costs | Shipowners  Shipowners/ship insurer  AMSA | Improved environment | Community and environment |
| Judicial costs | Australian Government  Shipowners |  |  |
| Financial security cost | Shipowners |  |  |
| Source: ACIL Allen | | | |
|  | | | |

The Nairobi Convention provides a cleaner, simpler and more certain approach to recovering costs by AMSA. A UK study[[8]](#footnote-8) reported that, cost recovery was improved from around 70% to around 90%. The applicability to AMSA’s circumstances is unknown.

## Financial security costs

According to AMSA,[[9]](#footnote-9) Australia’s policy is that those who pollute our marine environment should be responsible for cleaning up and repairing the damage they have caused. If AMSA has to do this because they do not, then they should pay AMSA. Under the Protection of the Sea (Prevention of Pollution from Ships) Act 1983, there are arrangements in place to make sure that suspected polluters have provided financial security for the potential costs that might arise. Under these arrangements AMSA can detain ships that have caused pollution, and before they are released, a letter of undertaking must be provided. This letter is an agreement by the shipper (through their insurer) to give security for clean-up costs and fines and to engage in any court proceedings that might be commenced.

AMSA worked out how much the security should be by considering the maximum amount that a court could impose as a penalty. As of July 2020, maximum penalties applying to discharge of pollution offences under the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 range between $550 and $22.2 million. In addition to the penalty there are other wreck removal expenses that could be payable by the owner of the marine incident. Whenever there is a marine incident, AMSA currently uses this Act to penalise the owner to recover costs.

Australia’s accession to the Nairobi Convention provide a potential benefit to the shipowners by avoiding this security penalty.

The Australian Government, through AMSA, could benefit from avoiding legal procedures to obtain financial security for incidents involving foreign vessels.

## Potential expenses of shipwreck removal

AMSA estimates the costs and expenses that may be incurred in responding to a marine incident on a case by case basis. Broad cost categories are listed in **Table 3.3.** Apart from some legal costs, the total costs and expenses may or may not change as a result of an accession to the Nairobi Convention. However, who incur those costs will change.

Table 3.3 Costs related to a marine incident

| Cost category | | Activities |
| --- | --- | --- |
| Costs relating to location | * Aerial assets—surveillance craft, helicopters, jet aircraft operation costs. * Search, rescue and surveillance activities. * Maritime assets—tugs, work boats, patrols, oil and hazardous waste and noxious substances recovery vessels. |
| Costs relating to marking | * Satellite images. * Documentation—maps, charts, pictures videos. * Trajectory spill monitoring. * Environmental assessment. * Recovery. * Remedial measures. |
| Labour | * Contract personnel. * Staff personnel and associated costs * Subcontracted companies. * Food, salaries, travel, accommodation etc. |
| Contents disposal | * Handling and disposal of waste / waste management. * Reimbursement to States and NT (including under the National Plan). * Reimbursement to state / territory maritime agencies under the Claims Management Guidelines. |
| Clean up costs (if AMSA required to do clean up) | * Initial assessment of the clean-up costs. * Information needed to plan or execute response or clean up strategies. * Equipment—booms, skimmers, anchors, containers, power packs. * Vehicles—cars, trucks, heavy equipment. * Asset purchases. * Substance sampling. * Oil spill response equipment. * Environmental damage. * Property replacement, cleaning, repairs. * External expert advice (technical, legal, claims management, media, public relations, etc). * On site office set up, including mail and telecommunications. * Miscellaneous. |
| Legal costs | * Legal costs of recovery claims. * Claims for compensation arising from loss of income from the fisheries and/or tourism sectors. * Compensation of valid claims arising from incident towards a court-administered limitation fund. * Payments for worker’s compensation. |
| Wildlife | * Wildlife rehabilitation and rescue costs, including capture and cleaning. |
| Scientific costs | * Short term environmental damage assessments. * Longer term damage assessments (including recovery). * Purely scientific studies—lab analysis, sample collection equipment. * Post response monitoring activities. * Special weather reports |
| Source: AMSA | |
|  | |

## Marine insurance

The Nairobi Convention includes a requirement for owners of vessels 300 GT and higher to have compulsory insurance to provide for wreck removal costs.

While P&I Clubs are familiar with the Nairobi Convention and providing the required proof of compulsory wreck removal insurance, the extension of the provisions to Territorial Sea and to domestic vessels means that shipowners will likely be looking more and more to non-P&I Club insurers for the necessary insurance. Shipowners operating only domestically may be more accustomed to relying upon the non-P&I Club marine insurers by reason of pricing or their country’s licensing requirements which limit P&I Club participation in their market. P&I Clubs themselves may be risk adverse to accepting barges used only in domestic voyages (often ranging from 500 GT to 5,000 GT).

P&I Clubs insurance premiums depend on a number of factors. On average, insurance premiums have ranged between $1.6/GT and $3/GT over the past seven years to 2019 as shown in Figure 3.3.

|  |
| --- |
| Figure 3.3 Annual average insurance premium, 2013-2019 |
|  |
| Source: Marsh Ltd 2019, P&I Review 2019.  <https://www.marsh.com/us/insights/research/protection-and-indemnity-review-2019.html> |
|  |

According to our consultations, the nature of the compulsory insurance required by the Nairobi Convention is not always well understood outside of the P&I Club market.

The Convention on Limitation of Liability for Maritime Claims (LLMC Convention) allows shipowners to limit their liability to pay compensation for general ship-sourced damage. The LLMC Convention applies to claims for loss of life and personal injury, as well as loss of or damage to property. It also applies to pollution damage where no other Convention applies. Currently the only other relevant Conventions which apply in Australia are:

* the International Convention on Civil Liability for Oil Pollution Damage and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage which together establish a comprehensive liability and compensation regime applying to pollution damage resulting from the escape or discharge of oil from oil tankers; and
* the International Convention on Civil Liability for Bunker Oil Pollution Damage which establishes a liability and compensation regime applying to pollution damage resulting from the escape or discharge of bunker (or fuel) oil from ships other than oil tankers.

The LLMC Convention generally also applies to claims relating to wreck removal. However, along with nine other countries, Australia has lodged a reservation excluding the application of that part of the LLMC Convention. The effect of the reservation in Australia is that a shipowner is liable for all expenses associated with the removal of a wreck. The LLMC Convention does not impose strict liability to pay compensation for damage on the shipowner. The amount of compensation that a court is able to award is limited by the LLMC Convention. Under the LLMC Convention, the shipowner's liability limit is calculated based on the size of the ship. The liability limits set out in the LLMC Convention in respect of claims for property damage are as follows:

* 1.51 million SDR or a ship with a gross tonnage not exceeding 2,000 (which is equivalent to A$1.85 million)
* for a ship with a gross tonnage in excess of 2,000, the following additional amount:
  + for each ton from 2,001 to 30,000 tons, 604 SDR;
  + for each ton from 30,001 to 70,000 tons, 453 SDR; and
  + for each ton in excess of 70,000 tons, 302 SDR.

The liability limits in respect of claims for loss of life or personal injury are twice the limits that apply in respect of property claims. There is a separate liability limit applying in respect of claims for loss of life or personal injury to passengers of a ship. In this case, the liability limit is 175,000 SDR multiplied by the number of passengers which the ship is authorised to carry.

There is no requirement for shipowners to gain and maintain insurance in the LLMC Convention. However, in Australia, Part IIIA of the [Protection of the Sea (Civil Liability) Act 1981](http://www.comlaw.gov.au/Series/C2004A02409), requires ships entering or leaving Australian ports to be insured up to the limits in the LLMC Convention to cover the liability of the shipowner for pollution damage caused in Australia. Part IIIA does not apply where insurance is required by the International Convention on Civil Liability for Oil Pollution Damage or by the International Convention on Civil Liability for Bunker Oil Pollution Damage. The LLMC Convention is implemented in Australian domestic legislation by the [Limitation of Liability for Maritime Claims Act 1989](http://www.comlaw.gov.au/Series/C2004A03899).

#### Impact on insurance costs

Insurance costs are not directly affected by the introduction of liability conventions where the right to limit is a quid pro quo for strict liability, rights of direct action, mandatory insurance and 3 months post termination of cover liability on the insurer.

Premium costs are specific to a particular shipowner, the type of ship they operate, its trade and trading patterns, management structure, claims history and a multitude of other factors. Premiums fluctuate. They can stand still or increase depending on the quantum of claims and the state of the marine reinsurance markets at the time of renewal. It would be misleading to try to pin an increase on the cost of premium purely as a result of a country’s ratification of one of the IMO liability conventions.

Insurance costs can increase for a while after one absolutely huge claim like the Costa Concordia (at $300-400 million) or after a series of smaller ones within a short period of time, with the higher premiums allowing insurers and reinsurers to rebuild their reserves. When the market stabilises after such an event, the premium often returns to a lower level.

The IG P&I Clubs are marine mutuals owned by the shipowner members. In the mutual system insurance and reinsurance is provided at market cost. The Clubs are not like many car or home insurance firms that have shareholders waiting for their annual dividend. The only circumstances under which AMSA or a state department will pay arises is if Australia is ‘unlucky’, as was the case in the UK with *MV Cita* and *MV Lagik*, when both the shipowner and (non-IG) insurer ‘disappeared’. These cases were unfortunate, and UK Department of Transport had to pursue the case against both ships through the German courts. UK Government legal fees were more than what they recovered. That is incredibly rare though and where the Group is involved, and providing the correct law is in place and it is properly applied, either the owner and or the club will meet costs for pollution clean-up operations, removal of wreck etc as per the cases of the *MSC Napoli*, *Costa Concordia*, *MV Smart* and countless others.

This is similar to the event that happened at Christmas Island.

A key point is that the Nairobi Convention does not of itself make any difference to claims or the cost of premium. If an accident occurs and the owner incurs a liability covered by their club’s rules, then the club pays and often does so first.

The advantage of the Nairobi convention is that they provide the holy trinity provisions of **strict liability** (no need to prove fault or negligence), **mandatory insurance** as a matter of the treaty law and **a right of action** against the insurer.

## Protection of the sea levy

The protection of the sea levy is a charge against ships which have the potential to become polluters of the marine environment. In the context of the Nairobi Convention, any ship which will be covered by the Nairobi Convention will already be paying the levy, but not all ships which pay the levy will be covered by the Nairobi Convention.

The levy funds the National Plan for Maritime Environmental Emergencies and clean-up costs which cannot be attributed to a known polluter, or which cannot be successfully recovered from a known polluter.

To date, all monies raised from the levy have been given by the Australian Government to AMSA who have used the levy to partially fund their operations, with unused funds accumulating to be used if the event of a large disaster.

For example, the levy fund was used to pay for the clean-up costs of the *YM Efficiency* incident.

The levy is reviewed annually. The total amount raised from the levy in 2019-20 was $36.6 million (see Figure 3.4).

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| Figure 3.4 Protection of the Sea levy, 2011-2020 |
|  |
| Source: Unpublished AMSA data |
|  |

In 2020-21, the levy is calculated at 11.25 cents per net tonnage (NT) per quarter, with a minimum of A$10 per quarter.

Historical net tonnage and average levy per net tonnage is provided in Figure 3.5.

The average levy rate was lowest in 2014 at 9.9¢/NT.

|  |  |
| --- | --- |
| Figure 3.5 Net tonnage and annual average Protection of the Sea levy, 2011-2020 | |
| Annual net tonnage | Annual average levy |
|  |  |
| Source: Unpublished AMSA data | |
|  | |

In theory, the levy changes based on the total value of incidents that happen year to year. If there is a large expensive incident, then the accumulated fund will be drawn down and levies will increase in subsequent years. Similarly, if there’s a period of time where funds expensed are lower than the monies raised by the annual levy, then AMSA’s investment fund should increase, and the levy rate should reduce over time.

In practice, however, the levy is consolidated with other levies and revenues without a legal requirement for the levy monies to be used solely for the intended purpose.

Consequently, while accession to the Nairobi Convention should replace some of the need to expense funds from the levy, there is no guarantee that the levy paid by shipowners will be reduced by the same amount that insurance fees increase as a result of the accession to the Nairobi Convention.

## Vessel activities in Australian waters

According to BITRE (2019)[[10]](#footnote-10), 5,845 uniquely identified cargo ships made a total of 32,801 port calls at Australian ports in 2016–17. These included 5,743 cargo ships which made 17,068 voyages to Australian waters from overseas ports.

The total number of unique cargo ships and the number of unique cargo ships from overseas calling at Australian ports both increased by 2.5 per cent per annum in trend terms over the five years to 2016–17.

Australian owned vessels are a subset of cargo ships that called at Australian ports reported in Table 3.4. According to BITRE’s Australian Sea Freight,[[11]](#footnote-11) in 2016–17, there were 143 vessels in owned by Australian companies of which 70 vessels were Australian flagged. All of these vessels are currently liable for incidents in both the Territorial Sea and the EEZ which result in a hazard or pollution which AMSA directs to be cleaned up. Consequently, accession to the Nairobi Convention is unlikely to change the liability of these vessels in the event of a wreck.

Table 3.4 Number of cargo ships that called at Australian ports, by ship type

| Year | | Bulk carriers | Chemical tankers | Container carriers | General cargo ships | LNG tankers | LPG tankers | Livestock carriers | Tankers | Vehicle carriers | TOTAL |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2007–08 | 2,580 | 59 | 304 | 271 | 25 | 55 | 24 | 348 | 176 | 3,842 |
| 2008–09 | 2,676 | 73 | 302 | 315 | 40 | 54 | 26 | 372 | 182 | 4,040 |
| 2009–10 | 2,921 | 67 | 288 | 338 | 39 | 53 | 25 | 414 | 194 | 4,339 |
| 2010–11 | 3,038 | 70 | 279 | 388 | 43 | 47 | 26 | 434 | 187 | 4,512 |
| 2011–12 | 3,396 | 69 | 366 | 432 | 33 | 57 | 26 | 505 | 206 | 5,090 |
| 2012–13 | 3,596 | 70 | 309 | 386 | 53 | 55 | 23 | 511 | 227 | 5,230 |
| 2013–14 | 3,890 | 52 | 321 | 417 | 42 | 53 | 31 | 500 | 209 | 5,515 |
| 2014–15 | 3,932 | 46 | 298 | 330 | 69 | 55 | 30 | 496 | 213 | 5,469 |
| 2015–16 | 3,965 | 46 | 318 | 270 | 105 | 55 | 33 | 523 | 222 | 5,537 |
| 2016–17 | 4,219 | 55 | 327 | 282 | 132 | 54 | 35 | 522 | 219 | 5,845 |
| Source: BITRE (2019), Australian Sea Freight 2016-17, Table 4.9 | | | | | | | | | | |
|  | | | | | | | | | | |

Nearly 27,000 domestic commercial vessels are Australian registered.[[12]](#footnote-12) The requirement for DCVs 300 GT and over to hold wreck-related insurance would be a new cost for owners as they are unlikely to hold an insurance policy from P&I Clubs and so will not already be covered. However, it is estimated this requirement will impact 251 vessels out of the approximately 27,000 DCVs, representing 0.9% of the sector. It is expected that DCV owners would be able to pass on any additional costs to the public, the freight forwarder, or the charter party or will be able to recover any wreck recovery-related costs through their contracts with the operator.[[13]](#footnote-13)

The wreck removal provisions in the Navigation Act 2012 cover:

* Registered Australian Vessels – vessels registered and flagged to Australia (not include DCVs) in Territorial Sea and EEZ, and
* Foreign vessels – vessels flagged anywhere but Australia – in Territorial Sea.

## An overview of recent incidents

Wreck removal costs depend on the type of ship, tonnage of ship, age of ship, and location of the marine incident. The wreck incidents in Australian Territorial Sea that have been handled by AMSA over the past five years are summarised in Table 3.5. On average, each incident costed AMSA around $20 million. Some of the noteworthy incidents include:

* A recent incident (25 June 2020) involved the loss of three shipping containers from the Liberian-flagged container ship, *Navios Unite*. The ship reported losing the containers overboard in rough weather about 33km (18 nautical miles) southwest of Cape Leeuwin in Western Australia.[[14]](#footnote-14) The costs of this incident is unknown.
* The *APL England* lost 46 containers near Sydney and Southcoast in 24 May 2020. The ship is owned by APL Singapore, insured by Steamship Mutual, and operated by ANL. Steamship Mutual agreed to pay AMSA’s costs $22.5 million in responding to the incident.[[15]](#footnote-15)
* The loss of 91 shipping containers overboard from the *YM Efficiency* during heavy seas experienced southeast of Newcastle on 1 June 2018. The ship’s owners Yang Ming were deemed responsible for retrieving containers and meeting the costs of retrieving containers. However, Yang Ming disputed the extent of their obligations which resulted in AMSA stepping in to undertake locating, salvaging and disposing of containers. To date, AMSA has spent $17.7 million on the operation (comprising approximately $1 million survey cost, $16 million salvage and disposals cost, and $0.7 million in project management expenses). At the date of this report, 61 of the 83 containers lost overboard have been dealt with. AMSA intends to recover all costs associated with the clean-up from Yang Ming and their insurers Britannia P&I and have begun legal proceedings to recover the $17.7 million spent to date plus a further $2.3 million as contingency for recovering the remaining missing containers.[[16]](#footnote-16) While a successful result from these legal proceedings will confirm that AMSA has some of the additional powers that they would gain if Australia acceded to the Nairobi Convention, this process would have been easier if Australia had already acceded the Nairobi Convention.
* *MV Tycoon* was a cargo ship that was under management by Ocean Grow International Ship management, Kaohsiung, Taiwan. She was wrecked on 8 January 2012 after breaking her moorings and was pushed into the cliffs at Flying Fish Cove, Christmas Island and broke up, spilling oil and phosphate into the sea. The owner abandoned any attempts to salvage the vessel, forcing the Australian Government to step in and foot the $5 million bill for her removal and remediation of the site. The Government then pursued the owners for clean-up costs. The data on legal costs is unavailable from AMSA, however they could be higher than the clean-up costs.

Table 3.5 Some recent shipwreck incidents in Australian territorial waters and costs

| Date/no | | Name | Incident type | Description | Latitude | Longitude | Costs ($m) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # | FV Sensation | Vessel Sunk | 24m Fishing Vessel | 34 36.20' S | 151 11.00' E |  |
| 2020/4016 | MV Navios Unite | 3 Containers Lost | 335m Container Vessel | 35 32.04` S | 116 31.12` E | 17 |
| 2020/3331 | MV APL England | 46 Containers Lost | 278m Container Vessel | 33 36.10` S | 152 08.06` E | 22.5 |
| 2018/3781 | MV YM Efficiency | 83 Containers Lost | 269m Container Vessel | 151.2185 S | 33.969667 E | 20 |
| 2017/6570 | AFV Dianne | Vessel Sunk | 18m Fishing Vessel | 24 17.22` S | 152 07.50` E |  |
| 2016/6807 | AFV Seabring | Vessel Sunk | 17m Fishing Vessel | 25-04.22S | 153-26.41E |  |
| 2016/4987 | MV APL England | 24 Containers Lost | 278m Container Vessel | 36-04S | 122-14E |  |
| 2016/3867 | MV Conti Emden | 4 Containers Lost | 215m Container Vessel | 37 25.20` S | 160 38.90` E |  |
| 2016/2074 | AFV Cassandra | Vessel Sunk | 17m Fishing Vessel | 24 55.12` S | 153 26.08` E |  |
| 2016/236 | AFV Star Mist | Vessel Sunk | 20m Fishing Vessel | 10 15.00` S | 143 06.00` E |  |
| Source: DITRDC and AMSA Annual Reports | | | | | | |
|  | | | | | | |

The costs that would be incurred in wreck removal operations in the future are very uncertain due to the high variation in the number and scale of wrecks each year.

## Key assumptions

It is not possible to make meaningful forecasts of the number of wreck incidents occurring in any given year. As reported in Table 3.5, the incidence of wreck over the past six years was around ten and they vary in terms of location, the type of vessel and the type of damage or wreck. The analysis reported in the next chapter provides an indicative costs and benefits if a wreck event happens in Year 1 with costs and benefits over next nine years.

To undertake this indicative illustrative analysis for the purpose of RIS, ACIL Allen developed the assumptions list provided in Table 3.6.

These assumptions are based on the qualitative discussion provided above and ACIL Allen discussions with the key stakeholders reported in Chapter 2, including AMSA and ACIL Allen’s understanding and review of literature.

Table 3.6 Key assumptions

| Category | | Value | Source | Comment | |
| --- | --- | --- | --- | --- | --- |
| **Average cost of wreck removal operations by type of ship** | | | |
| * Bulk carriers | $100 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * Chemical tankers | $15 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * Container carriers | $20 million | AMSA data | Average of recent incidents reported in Table 3.6 | |
| * General cargo ships | $20 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * LNG tankers | $45 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * LPG tankers | $10 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * Livestock carriers | $20 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * Tankers | $25 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * Vehicle carriers | $20 million | ACIL Allen | Based on average gross tonnage of international trading ship | |
| * DCV | $0.015 million | MSQ | Maritime Safety Queensland (MSQ), Report on War on Wrecks 2019 | |
| **Average cost of wreck removal operations by location** | | | |
| * Territorial Sea (12nm) | 100% | ACIL Allen | More sensitive areas and higher levels of marine traffic | |
| * EEZ (200nm) | 120% | ACIL Allen | Relatively fewer sensitive areas and lower levels of marine traffic but larger area and distance from coast. Foreign vessels currently require financial security for the potential costs that might arise from a wreck. Financial security costs are assumed 1% of total costs | |
| **Australian Government’s cost recovery from shipowner** | |  |  | |
| Option 1 | 70% | ACIL Allen | Based on 2010 UK study. | |
| Option 3 | 80% | ACIL Allen |
| Option 4 | 85% | ACIL Allen |
| Sub-option 1 | 90% | ACIL Allen |
| **Administrative costs** |  |  |  | |
| Costs of making, keeping and providing records | 7hrs/year/vessel  Median wage is $106,000/year | ACIL Allen | Calculation based on average wage,[[17]](#footnote-17) average number of voyages in a year and time involved | |
| Insurance certificate cost | A fee of A$70 is payable for the issue of a first certificate or, in the case of certificate renewal, when substantial changes are made. A fee of A$40 is payable on annual renewal of the certificate where existing insurance arrangements continue, or are not substantially changed.[[18]](#footnote-18) |  | The Convention impacts vessel owners that are over 1,000 GT, flagged under or entering the ports of any signatory state. These vessels must carry and produce a certificate, issued by the applicable Flag State, certifying that the ship has evidenced proper insurance or other financial security to cover the liability of the registered owner for wreck in an amount equal to the limits of liability under the applicable national or international regime. This would be annual cost, similar to the annual premiums. This certificate can be issued by AMSA if a certificate has not already been obtained from another party. | |
| Average P&I insurance premiums | $2.3/GT | Marsh Ltd[[19]](#footnote-19) | Compliance costs associated with financial costs, including the insurance costs incurred in complying with the Nairobi Convention It is unclear whether they differ by trading zone or country. | |
| **Reduction in legal costs relative to Option 1** | | | |
| Option 3 | 2.5% of wreck removal costs per year for five years | ACIL Allen | Based on review of literature and stakeholder consultations related consistency, simplicity and uniformity of regulations and procedures under Nairobi Convention. It is assumed 50% will be incurred by shipowners and 50% by AMSA. | |
| Option 4 | 5% of wreck removal costs per year for five years | ACIL Allen |
| **Financial security costs** | | | |
| Option 1 | 50% of disputes result in asset seizure for three years with annual opportunity cost of 10% of wreck removal costs. | ACIL Allen | Based on historical use of detention powers and opportunity cost of capital. | |
| **Other items** |  |  |  | |
| Discount rates | 7% (central) | Australian Government | OBPR Guidelines. | |
| An indicative incident year | 2021 | ACIL Allen | This can be treated as a year 1 | |
| Time period of evaluation | 10 years | ACIL Allen | Disputed wreck removal operations costs are incurred in year 1, with legal and financial security costs associated with the dispute incurred in subsequent. | |
| Source: ACIL Allen and various. | | | |
|  | | | |

It is evident from the above discussion that the wreck removal cost depends on the location and type of vessel (Table 3.5).

The AMSA data indicates recovery operations associated with the wreck of a containership in Australia was around $20 million. Given that the estimated average gross tonnage of the containership in the Australian trading fleet is around 32,000 GT, this implies that the cost of recovery operations per GT of ship is around $630. Due to the lack of actual data on each vessel type this average cost has been used to calculate an indicative cost of wreck removal operations by vessel type reported in Table 3.7.

The minimum and maximum cost of each vessel incident is not modelled, and the averages are only illustrative.

Table 3.7 Average wreck removal cost by type of vessel in Territorial Sea

| Vessel type | | Average GT of Australian trading fleet (‘000 GT) | Estimated cost ($m) |
| --- | --- | --- | --- |
| Bulk carriers | 159 | 100 |
| Chemical tankers | 24 | 15 |
| Container carriers | 32 | 20 |
| General cargo ships | 32 | 20 |
| LNG tankers | 72 | 45 |
| LPG tankers | 8 | 5 |
| Livestock carriers | 32 | 20 |
| Tankers | 40 | 25 |
| Vehicle carriers | 32 | 20 |
| DCVs |  | 0.015 |
| Source: ACIL Allen estimates based on previous incidents, BITRE (2019) Sea Freight 2016-17 and MSQ | | |
|  | | |

For DCVs, the data from Maritime Safety Queensland (MSQ) is used. The Report on War on Wrecks 2019, published by the MSQ reported that 96 vessels were removed at a total cost of $1.4 million, implying an average cost of $15,000 per wreck.[[20]](#footnote-20)

### Shipwreck removal by location

There are relatively fewer sensitive areas and lower levels of marine traffic in the EEZ compared with the Territorial Sea. However, it has a larger area and a longer distance from the coast. Therefore, it is assumed that the cost of wreck removal in the EEZ is broadly 20% higher than in the Territorial Sea.

### Cost recovery

The main benefit to the Australian Government from accession to the Nairobi Convention is increased cost recovery from shipowners. It would simplify the wreck removal process, placing liability on shipowners and their respective insurers and facilitate the possibility of full recovery of costs if AMSA is involved in the locating, marking, clean-up or removal of shipwrecks.

Currently, the average cost recovery rate by AMSA (on behalf of the Australian Government) is unknown and obviously it varies by incident.

A UK study[[21]](#footnote-21) reported that:

Over the past 17 years on average, 70% of costs incurred by Government in wreck clean-up and removal operations have been recovered.

Department of Transport (2010), Impact Assessment of the Wreck Removal Convention Bill, p.15.

The Australian Government’s average cost recovery rate could be higher or lower under current regulatory arrangements. Due to the lack of data, this study assumes the Australian Government’s cost recovery from the ship owner under Option 1 is around 70% and this will be increased to 80% under Option 3, 85% under Option 4 and 90% if including Sub-option 1.

Critically, this assumption relates to cost recovery from the *shipowner* (including the shipowner’s insurer, if relevant), and not cost recovery from the *shipping industry*. The shipping industry pays levies to AMSA (including the Protection of the Sea Levy) which is used to recover costs associated with incidents where the relevant shipowner cannot be found or where the costs are not fully recovered from the shipowner. Hence, the general Australian taxpayer is not being taxed to pay for wreck removal operations.

Using the above assumptions, Chapter 4 provides an indicative cost benefit analysis of proposed options.

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| Cost benefit analysis | 4 |
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## Analysis framework

It is difficult to undertake a typical cost benefit analysis of accession of the Nairobi Convention. This is primarily because of the rare number of incidents which will be affected by accession, thereby making it difficult to quantify many of the key benefits, most of which are related to if an incident occurs.

**Figure 4.1** summarises the key impacts of accession that have been identified by ACIL Allen, with the elements split between those that are associated with ongoing expenses, and those that are related to when a wreck incident occurs which currently results in a dispute regarding the Australian Government’s powers to recover costs. If such an incident happens, this is when key economic benefits associated with accession will arise. Many other impacts are associated with movements of costs between parties (that is, distributional effects) rather than providing net economic benefits.

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| Figure 4.1 Analytical framework |
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|  |
| Source: ACIL Allen |
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On the cost side, there are a range of ongoing expenses associated with accession that can be estimated with a medium to high level of certainty. These expenses differ based on the specific Option but involve the number of ships that will need to purchase compulsory insurance, maintain an annual insurance certificate from a Member State, and incur additional administrative costs associated with demonstrating compliance. These costs will fall primarily on the shipping industry.

The costs that are very uncertain, relate to those that would be incurred in wreck removal operations in the future. These expenses are highly uncertain due to the variation in number, type, scale and location of wrecks each year in Australian coastal waters, territorial sea and EEZ. The impact of accession to the Nairobi Convention on these costs, however, is primarily related to transfers between the Australian Government, insurers and shipowners, and the general shipping industry. That is, it is highly likely that the total cost of wreck removal operations will be unchanged at the first order under all options. Who would incur those costs, however, would change as result of the accession to the Nairobi Convention. The cost neutrality assumption of accession to the Nairobi Convention compared to the existing framework could be impacted:

* *Positively* by the increased involvement of insurers in salvage operations. That is, the compulsory insurance requirement may facilitate additional transfer of knowledge and technology related to how to undertake cost-effective clean-up operations for rare events.
* *Negatively* if the time limits on cost recovery actions under the Nairobi Convention (compared to no time limits currently under the Navigation Act), resulted in AMSA being extra cautious in determining that a wreck is a hazard, thereby ordering more removals than would otherwise occur.

Unlike the cost side, quantitative estimates of the benefits, either by specific parties or in total, are all highly uncertain and are linked to wreck incidents that result in a legal dispute under the current regulatory regime. For example, a key benefit of accession to the Nairobi Convention is related to an expected reduction in legal costs because of strict liability rules, compulsory insurance, and a broader definition of what constitutes a ‘wreck’ in the Nairobi Convention. In particular, the extra clarity around what powers the Australian Government has and who is liable in the event of a wreck in the EEZ will reduce the number of disputes, which, in turn, should reduce the cost of dealing with future wrecks by reducing the amount of legal costs associated with disputes.

Another key benefit of the reduction in the number of disputes associated with accession to the Nairobi Convention, is that the Australian Government should be less likely to need to use its powers to seize and hold assets of the shipowner as collateral until the dispute is resolved. In the case of a sister ship being seized as collateral, for example, this can result in significant costs for the shipowner due to the inability to transport cargos for a potentially significant amount of time. Similar to the expected reduction in legal costs, estimating such costs is very difficult as it will only occur in particular circumstances, and the nature of the assets detained and held can vary substantially.

For the purposes of the economic analysis, the ongoing costs associated with accession to the Nairobi Convention have been calculated over a ten year time frame. These have been compared to the potential benefits over the same timeframe that could arise in the event of a single incident (in the first year) involving different vessel types based on the assumptions reported in the previous chapter.

## Expected ongoing compliance costs under Options 3 and 4

Option 3 is acceding to the Nairobi Convention, and applying it to the EEZ while maintaining the Navigation Act 2012in the Territorial Sea. Option 4 is acceding to the Nairobi Convention, and applying it to the EEZ and Territorial Sea replacing the current legislative framework.

Introducing any new regulation typically incurs costs to both the Government and the industry. Consultation with AMSA indicates that the additional costs to the Australian Government could be negligible due to the reallocation of resources within AMSA. ACIL Allen has assumed this is correct for the purposes of this analysis.

However, shipowners would incur some compliance costs on an ongoing basis. They include:

* Administrative costs – costs of marking, showing and keeping various records
* Maintaining annual certificate of insurance and its fee
* Compulsory insurance and additional annual premiums (Option 4 only).

Table 4.1 presents the anticipated compliance costs under Options 3 and 4, with details regarding the calculations provided in the following sections. In total, over the first ten years, compliance costs under Option 3 and 4, relative to Option 1, are estimated to be $2.6 million and $3.0 million, respectively (or $1.8 million and $2.1 million in net present value terms using a 7% discount rate).

Table 4.1 Compliance costs under Options 3 and 4, relative to Option 1 over a ten-year period

| Heading | | Option 3 | | Option 4 | |
| --- | --- | --- | --- | --- | --- |
|  | | Undiscounted | NPV (7% discount rate) | Undiscounted | NPV (7% discount rate) |
|  | 2020 real $m | 2020 real $m | 2020 real $m | 2020 real $m |
| Administration costs | 2.3 | 1.6 | 2.3 | 1.6 |
| Certificate costs | 0.3 | 0.2 | 0.3 | 0.2 |
| Mandatory insurance costs | 0 | 0 | 0.4 | 0.3 |
| **Total compliance costs** | **2.6** | **1.8** | **3.0** | **2.1** |
| Note: Totals may not add due to rounding  Source: ACIL Allen | | | | |
|  | | | | |

#### Administrative costs

AMSA provided ACIL Allen with detailed (unpublished) data from their Protection of the Sea levy database, which includes information regarding the country where the vessels are flagged. Based on ACIL Allen analysis, over the past two years, 89.9% of all vessels which paid the levy were flagged in countries which are current signatories to the Nairobi Convention. For the calculations it has been assumed that these vessels are already familiar with the Nairobi Convention compliance arrangements. Consequently, they are not assumed to incur any additional administrative burden associated with Australia becoming a signatory. The remaining 10.1% (equal to 583 vessels), are assumed to incur additional administrative expenses of 7 hours per year to understand and demonstrate compliance with the Nairobi Convention rules. At the average wage rate assumed in Table 3.6, this implies an additional administrative cost burden to shipowners of $396 per ship per year (equal to $2.3 million, undiscounted, over the first 10 years). This cost applies to both Option 3 and 4.

#### Certificate costs

AMSA would still be required to issue insurance certificates to Australian vessels and foreign vessels whose state has been ratified under the Nairobi Convention. However, Australia recognises certificates issued by other State Parties[[22]](#footnote-22) which means that Australia only has to issue certificates attesting that Australian flagged ships (equal to 590 vessels) have wreck insurance.[[23]](#footnote-23)

It is unclear what the annual certificate price is for vessels. As noted in assumptions Table 3.6, it is likely they would be between $40 for renewing and $70 for a new certificate similar to the Bunker Fuel Convention Certificates. For calculation purposes, an insurance certificate is assumed to be issued to all 590 vessels from current non-signatory States for $70 in the first year, with all of these ships paying a renewal fee of $40 (in real terms) in following years. This implies a total cost to shipowners of $0.3 million, undiscounted, over the first 10 years. This cost applies to both Option 3 and 4.

#### Compulsory insurance costs

Under Option 3, the Regulated Australian Vessels (RAV’s) that do not operate outside the Territorial Sea would not require additional insurance. Foreign vessels and RAVs that are over 300 GT and operate in the EEZ would require adequate insurance whether compulsory under the Nairobi Convention or on a voluntary basis. However, ACIL Allen consultations reported in Chapter 2 and the review of literature suggest that vessels over 1,000 GT already have coverage of wreck removal in their insurance. Consequently, most of the foreign vessels that called at Australian ports would already have adequate insurance since they are more than 1,000 GT and most of them are State Parties under the Nairobi Convention. Therefore, it is considered that the number of vessels which will require additional insurance would be negligible under Option 3.

Under the Nairobi Convention, all shipowners would be liable for costs associated with locating, marking and removing wrecks. However, the compulsory insurance provisions would apply only to ships of 300 GT and above. The owners of ships of 300 GT and above must maintain insurance or other financial security to cover their liabilities in the event of wreck and obtain a Certificate attesting to the effectiveness of the insurance or financial security.

All vessels over 1,000GT entering or leaving Australian ports are already required to have a Certificate attesting to the maintenance of insurance to meet the requirements of the Bunker Convention. Therefore, the only ships that would be liable once the Nairobi Convention enters into force which are currently not required to hold maritime liability insurance would be those of between 300GT and 1,000GT.

There are currently around 31 Australian owned vessels (all of which are general cargo ships) which do not have compulsory insurance requirements. Whether these vessels currently have similar maritime liability insurances which could be converted into the insurance required under the Nairobi Convention is unknown. For the purposes of calculations, it has been conservatively assumed that, under Option 4, all of these vessels will have to acquire additional insurance at a real cost of $2.3/GT (see Table 3.6). This implies a total cost to shipowners under Option 4 of $0.4 million, undiscounted, over the first 10 years.

## Costs and benefits in the event of an incident

This section compares the costs and benefits if a shipwreck incident happens that results in a legal dispute regarding the powers of the Australian Government (delegated through AMSA) which results in the shipowner not paying for some or all of the costs of the clean-up operations.

### Option 1 (counterfactual) costs

If an incident happens in the current regulatory regime that results in a legal dispute, a number of hidden costs will be incurred both by the Australian Government and vessel owners. Foreign vessel owners may have to provide a financial security of some sort while the legal dispute is being resolved. Providing such financial security incurs costs to the shipowners over and above the wreck removal costs.

In some incidents, it is possible that Government will not be able to find an appropriate financial security in Australia’s legal jurisdiction. This occurred, for example, in the *MV Tycoon* incident atChristmas Island in 2012.

The Government (through AMSA) would be still responsible for locating, marking and removal of wrecks under the Navigation Act with the costs of disputed wreck removal operations falling initially to AMSA with the need to recover costs not paid by the shipowner from the general shipping industry through the Protection of the Sea levy.

Retaining the existing framework would continually incur the following costs:

* Wreck removal costs not recovered from shipowners (and borne by the general shipping industry instead)
* Financial security costs to foreign vessel owners involved in disputes
* Judicial, legal and court related costs to both the Australian Government and the shipowners, can extend more than 6 years (ongoing costs).

### Option 3 relative to Option 1

Accession to the Nairobi Convention would reduce or eliminate the costs reported in Section 4.2. These avoided costs would be benefits of accession to the Nairobi Convention.

**Avoided legal costs**

Both the Australian Government and the shipowner incur legal costs if a dispute arises under current regulatory arrangements. These costs have been assumed to be proportional to the value of the wreck removal costs which differ based on vessel type and the location of the incident.

As per assumptions in **Table 3.6**, the estimated legal costs under Option 3 are calculated as 2.5% of the wreck removal costs each year for six years after the incident. In this study, it is assumed that the legal costs are equally borne by the Australian Government and the shipowner. For example, wreck removal costs of a container vessel in the EEZ are assumed to average around $24 million (as reported in **Table 3.6**). Total avoided legal costs under Option 3 are therefore $0.60 million per year (of which $0.3 million per year is avoided legal cost by the Australian Government and $0.3 million per year is avoided legal costs by the shipowner). Over the assessment period for this study, this gives total avoided legal costs of $3.6 million (undiscounted), split equally between the Australian Government and the shipowner.

**Financial security benefits**

It is assumed in this study that one in two wreck incidents will require financial security under the current regulatory arrangements and holding of the financial security by the Australian Government, would incur an opportunity cost to the shipowner involved in the dispute of 10% per year. It is assumed that the financial security is held by the Australian Government for three years. These costs would be avoided under accession to the Nairobi Convention under Option 3. For example, wreck removal costs of a container vessel in the EEZ are assumed to be $24 million as reported in **Table 3.6**. Total avoided financial security costs are therefore $1.2 million per year (50% x 10% x $24 million). Over the assessment period, this gives a total avoided financial security cost of $3.6 million (undiscounted), which accrues directly to the shipowner.

**Cost recovery transfers**

Consistent with stakeholder consultations, it is assumed that the Australian Government will improve its cost recovery directly from the shipowner involved in the incident from 70% under current regulatory arrangements to 80% under Option 3. As discussed in Section 3.10.2, the cost recovery represents a reduction in the amount of transfers from the general shipping industry rather than a financial benefit to the Australian Government or the Australian taxpayer.

Based on the assumed cost recovery rates, for a wreck incident involving a container vessel, responsible shipowners will pay an additional $2.4 million with the general shipping industry receiving a benefit of $2.4 million as a result of accession to the Nairobi Convention under Option 3. That is, in net terms, there is no economic benefit. Rather there is a distributional effect.

An estimated net benefit of Option 3 relative to Option 1 is summarised in **Figure 4.2.** This indicates if a wreck incident happens to a vessel in Year 1 in the EEZ, the estimated net benefits of accession to the Nairobi Convention under Option 3 relative to Option 1 for Bulk carriers would be around $33.4 million ($27.3 million at 7% discount rate) and for Container carriers would be around $4.6 million ($4 million at 7% discount rate). As can be seen, a disputed incident involving all vessel types are expected to result in a net benefit to the economy.

|  |
| --- |
| Figure 4.2 Net benefits of Option 3 relative to Option 1 over a ten-year period |
|  |
| Source: ACIL Allen estimates from various assumptions |
|  |

The estimated incidence of costs and benefits of Option 3 relative to Option 1 are summarised in **Table 4.2**. A key distributional benefit is that the direct shipowners (or their insurers) involved in the incident are expected to directly bear the cost of clean-up operations rather than these costs being borne by the shipping industry more generally.

Due to the avoided legal costs, the Australian Government is expected to be a net beneficiary of accession to the Nairobi Convention under Option 3, relative to Option 1.

Similarly, due to the avoided legal costs but also due to the financial security benefits, the shipping industry is expected to be a net beneficiary of accession to the Nairobi Convention under Option 3, relative to Option 1. However, there will be some transfers from specific shipping owners involved in incidents to the shipping industry in general.

The estimated quantifiable Benefit Cost Ratio (BCR) varies between 1.4 and 13.9 (undiscounted), depending on the nature of the vessel involved in the disputed incident.

Table 4.2 Costs and benefits under Option 3 relative to Option 1 over a ten-year period

|  | | Bulk carriers | Chemical tankers | Container carriers | General cargo ships | LNG tankers | LPG tankers | Livestock carriers | Tankers | Vehicle carriers |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | $m | $m | $m | $m | $m | $m | $m | $m | $m |
| **Australian Government** |  |  |  |  |  |  |  |  |  |
| * avoided legal costs | 9.0 | 1.4 | 1.8 | 1.8 | 4.1 | 0.9 | 1.8 | 2.3 | 1.8 |
| *Net benefits* | *9.0* | *1.4* | *1.8* | *1.8* | *4.1* | *0.9* | *1.8* | *2.3* | *1.8* |
| *NPV (7% discount rate)* | *6.7* | *1.0* | *1.3* | *1.3* | *3.0* | *0.7* | *1.3* | *1.7* | *1.3* |
| **Shipowners (directly)** |  |  |  |  |  |  |  |  |  |
| * compliance costs (from Section 4.2) | –2.3 | –2.3 | –2.3 | –2.3 | –2.3 | –2.3 | –2.3 | –2.3 | –2.3 |
| * financial security benefits | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 |  |
| * avoided legal costs | 18.0 | 2.7 | 3.6 | 3.6 | 8.1 | 1.8 | 3.6 | 4.5 | 3.6 |
| * increased cost recovery from owners | 9.0 | 1.4 | 1.8 | 1.8 | 4.1 | 0.9 | 1.8 | 2.3 | 1.8 |
| *Net benefits* | –12.0 | –1.8 | –2.4 | –2.4 | –5.4 | –1.2 | –2.4 | –3.0 | –2.4 |
| *NPV (7% discount rate)* | *12.4* | *-0.3* | *0.4* | *0.4* | *4.2* | *–1.1* | *0.4* | *1.2* | *0.4* |
| **Shipping industry (indirectly)** | | | | | | | | | |
| * increased cost recovery from owners | 12.0 | 1.8 | 2.4 | 2.4 | 5.4 | 1.2 | 2.4 | 3.0 | 2.4 |
| *Net benefits* | *12.0* | *1.8* | *2.4* | *2.4* | *5.4* | *1.2* | *2.4* | *3.0* | *2.4* |
| *NPV (7% discount rate)* | *11.2* | *1.7* | *2.2* | *2.2* | *5.0* | *1.1* | *2.2* | *2.8* | *2.2* |
| **Global shipping industry** |  |  |  |  |  |  |  |  |  |
| *Net benefits* | *24.4* | *1.5* | *2.8* | *2.8* | *9.6* | *0.1* | *2.8* | *4.2* | *2.8* |
| *NPV (7% discount rate)* | *20.6* | *1.5* | *2.7* | *2.7* | *8.3* | *0.4* | *2.7* | *3.8* | *2.7* |
| **TOTAL NET BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Net benefits*** | ***33.4*** | ***2.8*** | ***4.6*** | ***4.6*** | ***13.6*** | ***1.0*** | ***4.6*** | ***6.4*** | ***4.6*** |
| ***NPV (7% discount rate)*** | ***27.3*** | ***2.5*** | ***4.0*** | ***4.0*** | ***11.3*** | ***1.1*** | ***4.0*** | ***5.5*** | ***4.0*** |
| **TOTAL COSTS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** |
| ***Discounted @7%*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** |
| **TOTAL BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***36.0*** | ***5.4*** | ***7.2*** | ***7.2*** | ***16.2*** | ***3.6*** | ***7.2*** | ***9.0*** | ***7.2*** |
| ***Discounted @7%*** | ***29.1*** | ***4.4*** | ***5.8*** | ***5.8*** | ***13.1*** | ***2.9*** | ***5.8*** | ***7.3*** | ***5.8*** |
| **BENEFIT COST RATIO** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***13.9*** | ***2.1*** | ***2.8*** | ***2.8*** | ***6.2*** | ***1.4*** | ***2.8*** | ***3.5*** | ***2.8*** |
| ***Discounted @7%*** | ***16.0*** | ***2.4*** | ***3.2*** | ***3.2*** | ***7.2*** | ***1.6*** | ***3.2*** | ***4.0*** | ***3.2*** |
| Note: All values are in real 2020 terms.  Source: ACIL Allen estimates from various assumptions | | | | | | | | | |
|  | | | | | | | | | |

#### Sensitivity analysis

As discussed in Section 4.1, the compliance costs associated with Option 3 have been estimated with medium to high certainty, and these will happen on a recurring basis. There is, however, high uncertainty around the key sources of economic benefit (namely the financial security benefit and the avoided legal costs), particularly because these are linked to specific circumstances of a wreck incident which result in a shipowner disputing the Australian Government’s right to force payment for clean-up.

Based on a single incident occurring, the above analysis calculates that accession to the Nairobi Convention is broadly economically beneficial. Separate to whether there is a net economic benefit, the distributional analysis of accession, is showing that there will be a beneficial social impact in terms of supporting the polluter pays principle.

If there are multiple disputed incidents or an incident with a high cost, the estimated benefits would be much larger without a concomitant change in the compliance costs. Similarly, if the assumed cost recovery increases above 80%, the estimated benefits will be much larger than the estimated compliance costs. This implies the finding that Option 3 will result in a net economic and social benefit should be reasonably robust.

Table 4.3 Costs and benefits under Option 4 relative to Option 1 over a ten-year period – sensitivity analysis

|  | | Bulk carriers | Chemical tankers | Container carriers | General cargo ships | LNG tankers | LPG tankers | Livestock carriers | Tankers | Vehicle carriers |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | $m | $m | $m | $m | $m | $m | $m | $m | $m |
| **TOTAL NET BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***33.4*** | ***2.8*** | ***4.6*** | ***4.6*** | ***13.6*** | ***1.0*** | ***4.6*** | ***6.4*** | ***4.6*** |
| ***NPV (3% discount rate)*** | ***30.5*** | ***2.7*** | ***4.3*** | ***4.3*** | ***12.5*** | ***1.1*** | ***4.3*** | ***6.0*** | ***4.3*** |
| ***NPV (7% discount rate)*** | ***27.3*** | ***2.5*** | ***4.0*** | ***4.0*** | ***11.3*** | ***1.1*** | ***4.0*** | ***5.5*** | ***4.0*** |
| ***NPV (10% discount rate)*** | ***25.2*** | ***2.4*** | ***3.8*** | ***3.8*** | ***10.5*** | ***1.1*** | ***3.8*** | ***5.1*** | ***3.8*** |
| **TOTAL COSTS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** | ***2.6*** |
| ***NPV (3% discount rate)*** | ***2.2*** | ***2.2*** | ***2.2*** | ***2.2*** | ***2.2*** | ***2.2*** | ***2.2*** | ***2.2*** | ***2.2*** |
| ***NPV (7% discount rate)*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** |
| ***NPV (10% discount rate)*** | ***1.6*** | ***1.6*** | ***1.6*** | ***1.6*** | ***1.6*** | ***1.6*** | ***1.6*** | ***1.6*** | ***1.6*** |
| **TOTAL BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***36.0*** | ***5.4*** | ***7.2*** | ***7.2*** | ***16.2*** | ***3.6*** | ***7.2*** | ***9.0*** | ***7.2*** |
| ***NPV (3% discount rate)*** | ***32.7*** | ***4.9*** | ***6..5*** | ***6.5*** | ***14.7*** | ***3.3*** | ***6.5*** | ***8.2*** | ***6.5*** |
| ***NPV (7% discount rate)*** | ***29.1*** | ***4.4*** | ***5.8*** | ***5.8*** | ***13.1*** | ***2.9*** | ***5.8*** | ***7.3*** | ***5.8*** |
| ***NPV (10% discount rate)*** | ***26.8*** | ***4.0*** | ***5.4*** | ***5.4*** | ***12.1*** | ***2.7*** | ***5.4*** | ***6.7*** | ***5.4*** |
| **BENEFIT COST RATIO** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***13.9*** | ***2.1*** | ***2.8*** | ***2.8*** | ***6.2*** | ***1.4*** | ***2.8*** | ***3.5*** | ***2.8*** |
| ***NPV (3% discount rate)*** | ***14.8*** | ***2.2*** | ***3.0*** | ***3.0*** | ***6.7*** | ***1.5*** | ***3.0*** | ***3.7*** | ***3.0*** |
| ***NPV (7% discount rate)*** | ***16.0*** | ***2.4*** | ***3.2*** | ***3.2*** | ***7.2*** | ***1.6*** | ***3.2*** | ***4.0*** | ***3.2*** |
| ***NPV (10% discount rate)*** | ***16.8*** | ***2.5*** | ***3.4*** | ***3.4*** | ***7.5*** | ***1.7*** | ***3.4*** | ***4.2*** | ***3.4*** |
| Note: All values are in real 2020 terms.  Source: ACIL Allen estimates from various assumptions | | | | | | | | | |

### Option 4 relative to Option1

An estimated net benefit of Option 4 relative to the Option 1 is summarised in **Figure 4**.**3**. The net benefits are broadly similar to the Option 3.

This indicates if a wreck incident happens to a trading ship in Year 1 in either in Territorial Sea or EEZ which results in a dispute, the estimated net benefits of accession to the Nairobi Convention under the Option 4 relative to the Option 1 for Bulk carriers would be around $48.0 million ($38.2 million at 7% discount rate) and Container carriers would be around $7.2 million ($6 million at 7% discount rate). As can be seen, on an undiscounted basis, a disputed incident involving all vessel types are expected to result in a net benefit to the economy.

|  |
| --- |
| Figure 4.3 Net benefits of Option 4 relative to Option 1 over a ten-year period |
|  |
| Note: All values are in real 2020 terms  Source: ACIL Allen estimates from various assumptions |
|  |

The estimated incidence of costs and benefits of Option 4 relative to Option 1 are summarised in **Table 4.4**.

The distribution of benefits between the Australian Government, shipowners and the general shipping industry are unchanged relative to Option 3.

A relatively higher economy-wide benefit occurs under this scenario due to the consistency and uniformity laws for the Territorial Sea and EEZ.

The estimated quantifiable BCR varies between 1.7 and 17.2 (undiscounted), depending on the nature of the vessel involved in the disputed incident.

Table 4.4 Costs and benefits under Option 4 relative to Option 1 over a ten-year period

|  | | Bulk carriers | Chemical tankers | Container carriers | General cargo ships | LNG tankers | LPG tankers | Livestock carriers | Tankers | Vehicle carriers |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | $m | $m | $m | $m | $m | $m | $m | $m | $m |
| **Australian Government** |  |  |  |  |  |  |  |  |  |
| * avoided legal costs | 16.5 | 2.5 | 3.3 | 3.3 | 7.4 | 1.7 | 3.3 | 4.1 | 3.3 |
| *Net benefits* | *16.5* | *2.5* | *3.3* | *3.3* | *7.4* | *1.7* | *3.3* | *4.1* | *3.3* |
| *NPV (7% discount rate)* | *12.3* | *1.8* | *2.5* | *2.5* | *5.5* | *1.2* | *2.5* | *3.1* | *2.5* |
| **Shipowners (directly)** |  |  |  |  |  |  |  |  |  |
| * compliance costs (from Section 4.2) | –3.0 | ––3.0 | –3.0 | –3.0 | –3.0 | –3.0 | –3.0 | –3.0 | –3.0 |
| * financial security benefits | 18.0 | 2.7 | 3.6 | 3.6 | 8.1 | 1.8 | 3.6 | 4.5 | 3.6 |
| * avoided legal costs | 16.5 | 2.5 | 3.3 | 3.3 | 7.4 | 1.7 | 3.3 | 4.1 | 3.3 |
| * increased cost recovery from owners | –18.0 | –2.7 | –3.6 | –3.6 | –8.1 | –1.8 | –3.6 | –4.5 | –3.6 |
| *Net benefits* | *13.5* | *–0.5* | *0.3* | *0.3* | *4.5* | *–1.3* | *0.3* | *1.2* | *0..3* |
| *NPV (7% discount rate)* | *9.1* | *-0.4* | *0.1* | *0.19* | *2.9* | *–1.0* | *0.1* | *0.7* | *0.1* |
| **Shipping industry (indirectly)** | | | | | | | | | |
| * increased cost recovery from owners | 18.0 | 2.7 | 3.6 | 3.6 | 8.1 | 1.8 | 3.6 | 4.5 | 3.6 |
| *Net benefits* | *18.0* | *2.7* | *3.6* | *3.6* | *8.1* | *1.8* | *3.6* | *4.5* | *3.6* |
| *NPV (7% discount rate)* | *16.8* | *2.5* | *3.4* | *3.4* | *7.6* | *1.7* | *3.4* | *4.2* | *3.4* |
| **Global shipping industry** |  |  |  |  |  |  |  |  |  |
| *Net benefits* | *31.5* | *2.2* | *3.9* | *3.9* | *12.6* | *0.5* | *3.9* | *5.7* | *3.9* |
| *NPV (7% discount rate)* | *25.9* | *2.1* | *3.5* | *3.5* | *10.5* | *0.7* | *3.5* | *4.9* | *3.5* |
| **TOTAL NET BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Net benefits*** | ***48.0*** | ***4.7*** | ***7.2*** | ***7.2*** | ***20.0*** | ***2.1*** | ***7.2*** | ***9.8*** | ***7.2*** |
| ***NPV (7% discount rate)*** | ***38.2*** | ***3.9*** | ***6.0*** | ***6.0*** | ***16.0*** | ***1.9*** | ***6.0*** | ***8.0*** | ***6.0*** |
| **TOTAL COSTS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** |
| ***Discounted @7%*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** |
| **TOTAL BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***51.0*** | ***7.7*** | ***10.2*** | ***20.1*** | ***23.0*** | ***5.1*** | ***10.2*** | ***12.8*** | ***10.2*** |
| ***Discounted @7%*** | ***40.2*** | ***6.0*** | ***8.0*** | ***8.0*** | ***18.1*** | ***4.0*** | ***8.0*** | ***10.1*** | ***8.0*** |
| **BENEFIT COST RATIO** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***17.2*** | ***2.6*** | ***3.4*** | ***3.4*** | ***7.7*** | ***1.7*** | ***3.4*** | ***4.3*** | ***3.4*** |
| ***Discounted @7%*** | ***19.3*** | ***2.9*** | ***3.9*** | ***3.9*** | ***8.7*** | ***1.0*** | ***3.9*** | ***4.8*** | ***3.9*** |
| Note: All values are in real 2020 terms.  Source: ACIL Allen estimates from various assumptions | | | | | | | | | |
|  | | | | | | | | | |

**Sensitivity analysis**

As per the sensitivity analysis for Option 3, the compliance costs associated with Option 4 have been estimated with medium to high certainty, and these will happen on a recurring basis. There is, however, high uncertainty around the key sources of economic benefit (namely the financial security benefit and the avoided legal costs), particularly because these are linked to specific circumstances of a shipwreck incident which result in a shipowner disputing the Australian Government’s right to force payment for clean-up.

As per the Option 3 findings, based on a single incident occurring, the above analysis calculates that accession to the Nairobi Convention under Option 4 is broadly economically beneficial, with the distributional analysis showing that there will be a beneficial social impact in terms of supporting the polluter pays principle.

This implies the finding that Option 4 will result in a net economic and social benefit should be reasonably robust.

Table 4.5 Costs and benefits under Option 4 relative to Option 1 over a ten-year period – sensitivity analysis

|  | | Bulk carriers | Chemical tankers | Container carriers | General cargo ships | LNG tankers | LPG tankers | Livestock carriers | Tankers | Vehicle carriers |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | $m | $m | $m | $m | $m | $m | $m | $m | $m |
| **TOTAL NET BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***48.0*** | ***4.7*** | ***7.2*** | ***7.2*** | ***20.0*** | ***2.1*** | ***7.2*** | ***9.8*** | ***7.2*** |
| ***NPV (3% discount rate)*** | ***43.4*** | ***4.4*** | ***6.6*** | ***6.6*** | ***18.1*** | ***2.1*** | ***6.6*** | ***8.9*** | ***6.6*** |
| ***NPV (7% discount rate)*** | ***38.2*** | ***3.9*** | ***6.0*** | ***6.0*** | ***16.0*** | ***1.9*** | ***6.0*** | ***8.0*** | ***6.0*** |
| ***NPV (10% discount rate)*** | ***34.9*** | ***3.7*** | ***5.5*** | ***5.5*** | ***14.7*** | ***1.8*** | ***5.5*** | ***7.3*** | ***5.5*** |
| **TOTAL COSTS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** | ***3.0*** |
| ***NPV (3% discount rate)*** | ***2.5*** | ***2.5*** | ***2.5*** | ***2.5*** | ***2.5*** | ***2.5*** | ***2.5*** | ***2.5*** | ***2.5*** |
| ***NPV (7% discount rate)*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** | ***2.1*** |
| ***NPV (10% discount rate)*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** | ***1.8*** |
| **TOTAL BENEFITS** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***51.0*** | ***7.7*** | ***10.2*** | ***10.2*** | ***23.0*** | ***5.1*** | ***10.2*** | ***12.8*** | ***10.2*** |
| ***NPV (3% discount rate)*** | ***45.9*** | ***6.9*** | ***9.2*** | ***9.2*** | ***20.7*** | ***4.6*** | ***9.2*** | ***11.5*** | ***9.2*** |
| ***NPV (7% discount rate)*** | ***40.2*** | ***6.0*** | ***8.0*** | ***8.0*** | ***18.1*** | ***4.0*** | ***8.0*** | ***10.1*** | ***8.0*** |
| ***NPV (10% discount rate)*** | ***36.7*** | ***5.5*** | ***7.3*** | ***7.3*** | ***16.5*** | ***3.7*** | ***7.3*** | ***9.2*** | ***7.3*** |
| **BENEFIT COST RATIO** |  |  |  |  |  |  |  |  |  |
| ***Undiscounted*** | ***17.2*** | ***2.6*** | ***3.4*** | ***3.4*** | ***7.7*** | ***1.7*** | ***3.4*** | ***4.3*** | ***3.4*** |
| ***NPV (3% discount rate)*** | ***18.1*** | ***2.7*** | ***3.6*** | ***3.6*** | ***8.1*** | ***1.8*** | ***3.6*** | ***4.5*** | ***3.6*** |
| ***NPV (7% discount rate)*** | ***19.3*** | ***2.9*** | ***3.9*** | ***3.9*** | ***8.7*** | ***1.9*** | ***3.9*** | ***4.8*** | ***3.9*** |
| ***NPV (10% discount rate)*** | ***20.1*** | ***3.0*** | ***4.0*** | ***4.0*** | ***9.0*** | ***2.0*** | ***4.0*** | ***5.0*** | ***4.0*** |
| Note: All values are in real 2020 terms.  Source: ACIL Allen estimates from various assumptions | | | | | | | | | |

## Sub-option 1

The Sub-option 1 is related acceding to the Nairobi Convention and applying it to Domestic Commercial Vessels through amendments to the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012.*

There are around 27,000 DCVs currently in Australian waters. All of these would be expected to incur additional costs associated with obtaining insurance certificates, along with additional administrative burden. A further 251 DCV’s are estimated to require compulsory insurance under Sub-option 1. Using the same assumptions as used in Section 4.2, the expected ongoing compliance costs associated with Sub-option 1 are expected to be $12.7 million per year.

There is no information available regarding the current extent of legal disputes nor the potential reduction in legal disputes that may occur with moving from the current state-based regulatory regimes to a harmonised Commonwealth regime based on the Nairobi Convention. Similarly, it is uncertain whether there will be any additional cost recovery benefits associated with Sub-option 1 compared to the current regulatory regimes. Further research may be warranted to determine whether this regulatory Option will provide economic benefits and whether any such benefits outweigh the estimated compliance costs provided in **Table 4.6**. Until such research is completed, the annual regulation burden associated with Sub-option 1 is deemed to outweigh any additional benefits associated with the uniformity of laws across Australian waters and vessels.

Table 4.6 Estimated compliance costs under Sub-option 1 (annual)

| Incidence | | Impacts | DCVs |
| --- | --- | --- | --- |
|  |  | $m |
| **Shipping industry** | administrative costs | --0.10 |
|  | insurance costs | -0.27 |
|  | certificate costs | -1.70 |
| **TOTAL COSTS** | **undiscounted** | -12.68 |
| **TOTAL BENEFITS** | **undiscounted** | 0 |
| **TOTAL NET BENEFIT** | **undiscounted** | -12.68 |
| Note: Totals may not add due to rounding.  Source: ACIL Allen | | |
|  | | |

## Environmental impacts

Wrecks can cause massive environmental damages in terms of contamination of water and coastal amenity. The environmental costs and avoided benefits are difficult to quantity and they depend on the number of factors. However, AMSA (as delegated by the Australian Government) is responsible for minimising any such environmental costs, and this responsibility won’t change as a result of accession to the Nairobi Convention.

Under the Nairobi Convention, a shipowner must remove the wreck and AMSA may act when a wreck constitutes a hazard which may reasonably be expected to result in major harmful consequences to the marine environmental damage to the coastal areas, port activities, fisheries, tourist activities and other economic interest of areas concerned, including conservation of marine living resources such as great barrier reef, offshore and under water infrastructure.

This wider definition under the Nairobi Convention would allow the Australian Government to have clear powers to act upon any threat to the environment. It would also allow the Australian Government to respond quickly to lessen the impacts.

The Nairobi Convention would also provide an incentive for shipowners to maintain their ships as insurers would be likely to consider the quality of ship when calculating the insurance premiums.

Environmental impacts are assumed to be the same between all Options so have not been quantified in this study.

## Caveats of analysis

A key purpose of this study is to quantify potential impacts of Australia’s accession to Nairobi Convention under different Options. Based on the available data and assumptions, this study finds that therefore would be net benefits of Australia’s accession to the Nairobi Convention.

Option 4 is acceding to the Nairobi Convention, and applying it to the EEZ and Territorial Sea replacing the current legislative framework provides relatively more net benefits compared with Option 1 where the existing framework remains and Option 3 where the existing framework remains in the Territorial Sea.

The costs that would be incurred in wreck removal operations in the future are very uncertain due to the high variation in the number and scale of wrecks in each year. To provide an indicative illustrative analysis, this study employed ‘what if’ analysis. This ‘what if’ analysis is based on the assumption that if a wreck related to a particular type of vessel happens in either the Territorial Sea or EEZ what would be the costs and benefits over a ten-year period. The estimates of the monetised costs and benefits are very sensitive to the assumptions and should therefore be treated as illustrative orders of magnitude.

In addition, a range of caveats apply to the estimates in this report. Key caveats and assumptions used in the analysis, including an indication of their impacts, include the following:

* The true powers of the Australian Government, and hence the cost of disputes, can change radically based on a court precedent. Such a precedent could either reduce or increase powers under the existing regulatory regime compared to the Nairobi Convention.

**Impact: Uncertain but is likely to reduce the number and costs of legal disputes under Option 1, but with uncertainty around whether direct shipowners will be more or less liable for particular wreck incidents.**

* This study does not incorporate the levy dynamics in the above economic analysis. That is, the current Protection of the Sea Levy can be thought of as a form of insurance paid for by the shipping industry in the event that AMSA fails to fully recoup wreck recovery costs from shipowners (or their insurers). Consequently, the introduction of strict liability, clearer and wider definitions of wrecks and mandatory insurance, would be expected to reduce the need to recover expenses related to particular incidents through the levy. All else equal, then, over time, this should result in the total cost of the levy falling by some or all of the increased insurance premium cost.

**Impact: Neutral or increased benefits approximately equal to the value of the increased insurance premiums.**

* Movement of liability to include more parties could result in lower cost of salvage (additional productivity benefits). These are not included in the analysis due to the uncertainties associated with these cost savings.

**Impact: Neutral or increased benefits associated with a reduction in the cost of clean-ups.**

* The current levy costs are linked to events that only occur in Australian waters. However, when moving to a shipping insurance arrangement under the Nairobi Convention, at least part of the insurance premia is linked to global incidents rather than only to local incidents (even if it is just the portion of insurance costs linked to reinsurance). Costs therefore could either be higher or lower depending on the relative risk of Australian wreck events compared to international wreck events.

**Impact: Uncertain impacts on the relative cost of insurance compared to the current levy payments.**

* Due to the significant uncertainty, no account has been taken of possible future increase in safety or technology that could decrease the number of wrecks going forward. The analysis is based on what if an incident happens based on the indicative costs for illustrative purposes. Offsetting this effect, however, is the fact that the analysis does not include any potential impact on the likely increase in the number of ship movements which could increase the future number of wreck incidents with disputed cost recovery from the shipowner.

**Impact: Uncertain – Reduced benefits due to reduced number of wreck incidents in the future** **due to greater safety offset by increased number of ship movements increasing the future number of wrecks.**

* No account was made of the potential impact of time limits on cost recovery actions under the Nairobi Convention (compared to no time limits currently under the Navigation Act). In terms of economic impacts, it is likely that this will induce an incentive for AMSA to be extra cautious and determining that a wreck which is not immediately a hazard as a hazard in case the time window for providing directions closes.

**Impact: Uncertain, but potentially Increased costs due to more wreck removals being ordered to be cleaned-up than would otherwise occur.**

* The additional cost recovery from shipowners under Options 3 and 4, were conservatively assumed to be 80% and 85%, respectively. The clearer definitions and strict liability provisions under the Nairobi Convention could be expected to increase this cost recovery to closer to 100%.

**Impact: Increased social benefits due to increased payments for wreck recovery operations by the shipowner directly involved in an incident rather than indirect payments by the general shipping industry.**

* The analysis that has been undertaken has focused on costs and benefits to the shipping industry (and direct shipowners). In practice, the majority of the shipping industry is owned and/or operated by foreign residents. For RIS’, the guidance by the OBPR is, as far as practical, to count the costs and benefits to all people residing in Australia, rather than measuring international impacts. Data limitations have precluded such analysis. However, as the shipping industry is providing services to Australian residents, changes in the costs and benefits to international providers are likely to be reflected in the future cost of their services to Australians.

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| |  |  |  | | --- | --- | --- | |  |  |  | | Melbourne  Level 9, 60 Collins Street  Melbourne VIC 3000 Australia  +61 3 8650 6000  Canberra  Level 6, 54 Marcus Clarke Street  Canberra ACT 2601 Australia  +61 2 6103 8200 | Sydney  Level 9, 50 Pitt Street  Sydney NSW 2000 Australia  +61 2 8272 5100  Perth  Level 12, 28 The Esplanade  Perth WA 6000 Australia  +61 8 9449 9600 | Brisbane  Level 15, 127 Creek Street  Brisbane QLD 4000 Australia  +61 7 3009 8700  Adelaide  167 Flinders Street  Adelaide SA 5000 Australia  +61 8 8122 4965 | | ACIL Allen Pty Ltd  ABN 68 102 652 148 |  |  | | acilallen.com.au |  |  | |

1. BITRE (2019) Australian sea freight 2016-17. [↑](#footnote-ref-1)
2. Note: AMSA is currently in the process of testing the extent of their powers in a current court case against

   the YM Efficiency using a range of other Acts. The initial hearing is scheduled for July 2021. If this case

   proceeds to a final judgement, then it is possible that a precedent will be set demonstrating that AMSA

   effectively has at least some of the same additional powers as would be granted under the Nairobi

   Convention. Similarly, failure in court to recover additional costs from YM Efficiency could verify the current

   perceived limits of AMSA’s powers, thereby demonstrating that accession to the Nairobi Convention is

   required to close the current gaps. [↑](#footnote-ref-2)
3. https://www.bbc.com/news/uk-england-devon-38657674 [↑](#footnote-ref-3)
4. http://www.grahamswebdesign.com/salvage-vessel-tricolor.html [↑](#footnote-ref-4)
5. [https://www.pmc.gov.au/resource-centre/regulation/user-guide-australian-government-guide-regulatory-impact-analysis dated March 2020](https://www.pmc.gov.au/resource-centre/regulation/user-guide-australian-government-guide-regulatory-impact-analysis%20dated%20March%202020). [↑](#footnote-ref-5)
6. <https://pmc.gov.au/resource-centre/regulation/cost-benefit-analysis-guidance-note> [↑](#footnote-ref-6)
7. Department of Infrastructure, Transport, Regional Development and Communications - a Discussion Paper to examine whether accession to the Nairobi Convention would benefit Australia. [↑](#footnote-ref-7)
8. Department of Transport (2010), Impact Assessment of the Wreck Removal Convention Bill. https://www.legislation.gov.uk/ukia/2010/249/pdfs/ukia\_20100249\_en.pdf [↑](#footnote-ref-8)
9. https://www.amsa.gov.au/marine-environment/pollution-response/polluter-pays-security-costs [↑](#footnote-ref-9)
10. https://www.bitre.gov.au/publications/2019/australian-sea-freight-2016-17. [↑](#footnote-ref-10)
11. https://www.bitre.gov.au/publications/2019/australian-sea-freight-2016-17. [↑](#footnote-ref-11)
12. AMSA (2020), Annual Report. [↑](#footnote-ref-12)
13. DRAFT RIS Australia’s accession to the Nairobi Convention 2021. [↑](#footnote-ref-13)
14. https://www.amsa.gov.au/news-community/news-and-media-releases/ship-navios-unite-loses-threecontainers-cape-leeuwin-wa [↑](#footnote-ref-14)
15. https://www.amsa.gov.au/news-community/campaigns/apl-england-container-loss [↑](#footnote-ref-15)
16. https://www.amsa.gov.au/news-community/campaigns/operation-recovery-ym-efficiency-factsheet [↑](#footnote-ref-16)
17. https://www.payscale.com/research/AU/Job=Marine\_Engineer/Salary [↑](#footnote-ref-17)
18. AMSA 2021, https://www.amsa.gov.au/forms/application-certificate-insurance-bunkers-convention-vessels-other-tankers-over-1000-gt [↑](#footnote-ref-18)
19. March Ltd (2019), P&I Review 2019, https://www.marsh.com/us/insights/research/protection-and-indemnity-review-2019.html [↑](#footnote-ref-19)
20. <https://www.msq.qld.gov.au/-/media/MSQInternet/MSQFiles/Home/WoW-Taskforce-Interim-Report-March-2019.pdf?la=en>

    This average cost was current at 2019 and would vary overtime depending on the type and location of the wrecks to be removed. At least one vessel identified in the Report on War on Wrecks far exceeded the 2019 average cost. [↑](#footnote-ref-20)
21. Department of Transport (2010), Impact Assessment of the Wreck Removal Convention Bill. <https://www.legislation.gov.uk/ukia/2010/249/pdfs/ukia_20100249_en.pdf> [↑](#footnote-ref-21)
22. Article 12(9) of the Nairobi International Convention on the Removal of Wrecks, 2007 [↑](#footnote-ref-22)
23. Article 12(2) of the Nairobi International Convention on the Removal of Wrecks, 2007 [↑](#footnote-ref-23)