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COMPENSATION
FUND 1992

EXECUTIVE COMMITTEE
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Agenda item 3

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INCIDENTS INVOLVING THE 1992 FUND

SOLAR 1

Note by the Director

Summary: The Philippines registered tanker *Solar 1* sank in 630 metres of water some 10 nautical miles south of Guimaras Island, Republic of Philippines. An unknown, but large quantity of oil was spilled, most of which stranded on the south coast of Guimaras Island. The oil had a significant impact on small-scale fisheries and aquaculture as well as on small-scale tourism businesses leading to considerable financial hardship for some individuals. This has necessitated a pro-active approach by the 1992 Fund and the shipowner's insurer in order to enable them to make rapid assessments of losses in order to be able to make interim compensation payments.

The incident is the first involving a vessel entered in the Small Tanker Oil Pollution Indemnification Agreement 2006 (STOPIA 2006) under which the shipowner/insurer have voluntarily agreed to increase the limitation amount applicable to the vessel under the 1992 Civil Liability Convention to £15.8 million.

In view of the likelihood that a significant quantity of oil remains in the wreck, and in view of the seismic activity in the vicinity of the wreck and its close proximity to sensitive environmental and economic resources, the Director is of the opinion that a claim for the costs of removing the oil from the wreck would be admissible in principle.

Action to be taken: To decide :

(a) whether to authorise the Director to make final settlements on behalf of the 1992 Fund of claims arising from this incident; and,

(b) whether a claim for the cost of removing oil from the wreck is admissible in principle.

1 The incident

1.1 On 11 August 2006 the Philippines registered tanker *Solar 1*, (998 GT), laden with a cargo of 2 081 tonnes of industrial fuel oil, sank in heavy weather in the Guimaras Straits, some 10 nautical miles south of Guimaras Island, Republic of Philippines (see map at Annex I).

1.2 The vessel, which had departed from Bataan (Republic of Philippines) on 9 August 2006 bound for Zamboanga (Republic of Philippines) had encountered heavy seas on 10 August and had began to trim by the head. The vessel sought shelter to the north of Guimaras Island where an inspection by the crew revealed damage to the forecastle, resulting in an ingress of seawater in the motor room, cargo gear room, fore peak and chain locker. After temporary repairs had been carried out and all water removed from the flooded spaces the vessel resumed its passage on the same day. During the afternoon of 11 August the vessel encountered heavy seas and developed a 5° starboard list. The list worsened rapidly causing the vessel to capsize and the master ordered the crew to abandon ship. Eighteen of the 20-crew members survived the incident but two were lost at sea. The survivors reported seeing the vessel's bow slowly submerge and after a while only the stern and the propeller were visible before it too disappeared.

1.3 An unknown, but substantial quantity of oil was released from the vessel after it sank and the sunken wreck continues to release oil, albeit in ever decreasing quantities.

1.4 The Philippines National Mapping and Resource Information Authority (NAMRIA) undertook a bathymetric survey of the area of the sinking and located the vessel in 630 metres of water, almost immediately below the location of surfacing oil.

1.5 The *Solar 1* was entered with the Shipowners' Mutual Protection and Indemnity Association (Luxembourg) (Shipowners' Club).

1.6 The Shipowners' Club and the 1992 Fund jointly requested an expert from the International Tanker Owners Pollution Federation Limited (ITOPF) to travel to the Philippines.

1.7 The 1992 Fund has engaged a lawyer in the Philippines to assist it in dealing with any legal issues which may arise from the incident.

2 The 1992 Conventions and STOPIA 2006

2.1 The Republic of the Philippines is a party to the 1992 Civil Liability and Fund Conventions.

2.2 The limitation amount applicable to the *Solar 1* in accordance with the 1992 Civil Liability Convention is 4.51 million SDR (£3.6 million). However, the owner of the *Solar 1* is a party to the Small Tanker Oil Pollution Indemnification Agreement 2006 (STOPIA 2006) whereby the limitation amount applicable to the tanker under that Convention is increased, on a voluntary basis, to 20 million SDR (£15.8 million). However, the 1992 Fund continues to be liable to compensate claimants if and to the extent that the total amount of admissible claims exceeds the limitation amount applicable to the *Solar 1* under the Convention. The 1992 Fund, which is not a party to STOPIA, has legally enforceable rights of indemnification from the shipowner of the difference between the limitation amount applicable to the tanker under the 1992 Civil Liability Convention and the total amount of admissible claims or 20 million SDR (£15.8 million), whichever is the less.

2.3 As a result of discussions with the International Group of P&I Clubs the Director will submit to the 1992 Fund Assembly a document setting out a proposal for the administrative procedures for indemnification of the 1992 Fund under STOPIA 2006 (document 92FUND/A.11/29). Pending the Assembly's consideration of this matter it was agreed between the Director and the Shipowners' Club that the 1992 Fund should assume responsibility for compensation payments once the Club had paid compensation up to the limitation amount applicable to the *Solar 1* under the 1992 Civil Liability Convention. The 1992 Fund would then seek regular reimbursements from the Club up to the STOPIA limit, payments to be made by the Club within two weeks of being invoiced by the Fund. If this procedure is followed it should not be necessary for the Fund to levy contributions unless the total amount of admissible claims exceeds the STOPIA 2006 limit.

3 Clean-up operations

3.1 The Philippine Coast Guard, as the lead government agency for spill response in the Philippines, took overall control of the clean-up operations. The at sea response focused on the application of chemical dispersants to the freshly released oil using a light aircraft and vessels. The shipowner entered into agreements with three commercial contractors to provide tugs and response equipment, including the light aircraft.

3.2 Attempts were made to protect some sensitive sites using commercial booms and home made booms constructed from wire netting and indigenous materials such as banana leaves and coconut husks.

3.3 Following a request for international assistance by the Philippine Government, the United States Government sent a National Oceanic and Atmospheric Administration Scientific Support Co-ordinator and representatives from the United States Coast Guard's Pacific Strike Team. The Japanese Coast Guard also sent a representative to provide advice to the Philippine Coast Guard.

3.4 Petron Corporation, the charterers of the *Solar 1*, assumed the responsibility for organising and managing the shoreline clean-up, which was largely undertaken by residents of affected villages recruited by Petron under a 'cash for work' programme. Around 1 500 individual residents participated in the shoreline clean-up at the height of the response and by 29 September 2006 a total of some 36 000 man-days had been expended in these operations.

3.5 Shoreline clean-up was undertaken using predominantly manual methods and primarily focused on sandy beaches on the south coast of Guimaras Island. By 29 September 2006 approximately 1 800 tonnes of oily waste had been generated through shoreline cleaning. The waste was collected from various sites for eventual transportation to a cement factory where it will be used as an alternative fuel and raw material in the production of cement.

4 Impact of the spill

Shoreline contamination

4.1 The Guimaras Straits contain a group of islands, the shorelines of which include sandy beaches, rocky shores, coral reefs, seagrass beds and mangroves. The south-west coast of Guimaras Island, the largest island in the Strait, contains a national marine reserve and an aquaculture research centre. The area supports an important small-scale fishery, and coastal and onshore aquaculture is widespread. Guimaras Island also supports a modest tourism industry.

4.2 Oil began stranding on the south and south-west coasts of Guimaras Island and a number of small islets off the south-east coast on the 15 August 2006. These coasts are dominated by mangrove forests, which are particularly vulnerable to the smothering effects of oil. Lesser quantities of oil also stranded on the coast of Panay in the vicinity of Iloilo and to the north of Ajuy Bay and the Conception Islands.

4.3 About 124 km of shoreline and around 500 hectares of mangrove were polluted to varying degrees. The Department of Environment and Natural Resources (DENR) and researchers from the University of the Philippines in Visayas have embarked on a study of the short and long-term effects of the oil on the mangrove trees. ITOPF experts have been advising them on the types of studies that would meet the 1992 Fund's admissibility criteria.

Fisheries and aquaculture

4.4 The oil spill had a major impact on small scale fisheries on the Guimaras Island, which fall broadly into two categories: a small boat fishery which uses a variety of fishing gears and a fixed trap fishery which uses large structures fixed to the seabed to trap the fish in compartments from which they are harvested. Around 2 000 individuals engaged in fishing were directly affected by the pollution either as a result of contamination of their fishing gear or the presence of oil in their

fishing grounds. A further 2 000 individuals engaged in fishing off parts of the island that were not polluted reported experiencing difficulties in selling their catch due to public perception that all fish from Guimaras Island may be tainted.

4.5 Those people in the fishing community who participated in the shoreline clean-up operations and have received regular payments from the charterer of the vessel, Petron Corporation, have not suffered serious financial hardship. However, if fishing is not resumed soon after the clean-up operations are completed this situation could change.

4.6 The spill also impacted aquaculture facilities, which primarily consist of brackish-water culture of milkfish in onshore ponds. Seawater is allowed into the ponds through sluices (intakes). The Bureau of Fisheries and Aquatic Resources reported that about 90 operators of fishponds were affected to varying degrees. Some operators decided to harvest their fish early due to fears of contamination as a result of which the fish had not reached their normal market size. There were a few reports of mortalities of fish. Heavy oiling of ponds was not widespread. In some cases dyke failure caused by unusually high tides and waves prior to the incident resulted in damage to ponds prior to the oil spill.

4.7 Significant areas of seaweed culture, in which the seaweed is attached to ropes suspended off the seabed on poles, were reported to have been affected by the oil. The seaweed is susceptible to environmental stress such as reduced salinity, heat and pollution. There is a strong likelihood that the oil from the *Solar 1* was responsible for most of the damage observed in crops in the polluted area.

4.8 A fishery expert from Ireland and an aquaculture expert from the United Kingdom with experience of working in the Philippines were engaged by the Shipowners' Club and the 1992 Fund to attend on site to make an overall assessment of the losses and to advise claimants on the submission of claims (see section 5).

Tourism

4.9 Guimaras Island is very dependent on its beaches to attract visitors, since there are very few alternative tourist attractions. As a consequence the spill has had a major impact on tourist businesses. The majority of visitors make day excursions to the island (76%) and the remaining 24% are tourists staying overnight in Guimaras. Of the tourist visitors, an estimated 94% are domestic (ie Filipino nationals), while 6% are of foreign origin, mainly from Korea and Japan. The peak visitor season is April to June while the rest of the year has relatively constant monthly visitors.

4.10 The Shipowners' Club and the 1992 Fund have engaged tourism experts from the United Kingdom. These experts, who have been used by the Fund in previous incidents, travelled to the affected area and met with many potential claimants to gain a better understanding of the nature of their businesses and the impact of the spill on their operations and to advise them on how to submit their claims for compensation.

4.11 There are about 80 tourist businesses on Guimaras Island and its surrounding islets. More than half of these are beaches and operations loosely referred to as beach resorts. About 25 are located in the polluted part of the island. However, in view of the small size of the island it is likely that those outside the contaminated area have been affected by a downturn in visitors. There are also mountain resorts, eco and agri-tourism sites and sites of historical or religious interest. The above businesses do not include restaurants, retailers and transport operators, such as pleasure boat operators.

4.12 The beach resorts offer accommodation with two or more rooms, which vary from air-conditioned with facilities to communal rooms with no facilities to open air spaces with umbrellas. They also provide restaurant and picnic services used by overnight guests and day excursionists. Most of these businesses are small, privately owned enterprises with relatively low revenue levels and many are experiencing considerable hardship. There are a few resorts located on small islets off

Guimaras Island, which generally offer a rather higher standard of facilities, cater for a higher percentage of foreign markets and have a totally different operating profile to those located on Guimaras.

4.13 In view of the extremely negative media attention that the incident has attracted, it would be commercially beneficial for the tourism sector to mount a well planned and co-ordinated marketing campaign once the clean-up has been completed in order to mitigate tourism losses.

5 Visit to the Philippines by the 1992 Fund and the Shipowners' Club

5.1 The Deputy Director/Technical Adviser and one of the Claims Managers together with a representative of the Shipowners' Club visited the Philippines from 4 – 12 September 2006 to conduct a series of claims workshops with representatives of central government, provincial governments and claimants. The meetings were arranged by representatives of Petron Corporation who accompanied the Club and the Fund throughout their visit.

Meetings with the National Disaster Co-ordination Council (NDCC)

5.2 The Fund and Club representatives met the NDCC to explain the purpose of their visit and to provide the Council with details of the international compensation regime. After presentations on the legal framework of the 1992 Civil Liability and Fund Conventions and the roles of the Club and the Fund there was a question and answer session. The Secretary of the Department of National Defence, who is also the Chairman of the NDCC explained that the Council's role was to co-ordinate and monitor the overall response to the incident and to report to the President of the Philippines.

5.3 The Fund and Club representatives informed the NDCC that the primary purpose of their visit to the affected area was to hold a series of claims workshops for claimants in the fishery, mariculture and tourism sectors, as well as for those involved in the clean-up response and the assessment of the environmental impact of the spill. In addition to running the claims workshops the Fund and the Club representatives stated that they intended to explore with claimants the most effective way of receiving and processing their claims.

5.4 The Fund and the Club representatives agreed to meet with the NDCC at the end of their visit to the affected area and to attend a press conference immediately afterwards.

5.5 At that meeting the Fund and the Club representatives briefed the Council on the outcome of their visit as set out below and gave a presentation of the findings of the underwater survey of the wreck that had been instigated by the Club (see section 7).

Meetings with the Provincial Government of Guimaras

5.6 At a meeting with the Governor of the Province of Guimaras the Governor expressed his appreciation of the attendance by the Club and the Fund and offered his full support and assistance with the collation and verification of all claims from the fishing community. He noted that whilst the pollution from the vessel had now stabilised, the inhabitants of Guimaras Island were very concerned that there could be a major release of oil in the future causing further pollution damage.

5.7 The Fund and the Club conducted a claims workshop for provincial government agencies responsible for fisheries, tourism, the environment and natural resources. The workshop covered the legal framework of the international compensation regime and the different types of claims for pollution damage, including details of the Fund's admissibility criteria, how claims should be presented and how the Club and the Fund assessed and approved claims.

5.8 Concerns were raised that many of the fishermen affected by the spill would not be able to substantiate their losses, since they were not required to maintain records and their earnings were not sufficient to require them to pay income tax. The representatives of the Fund and the Club

gave assurances that the Fund and the Club would take a flexible approach when dealing with such claims taking into account the particular circumstances of the claimants.

Meetings with claimants

5.9 The Fund and the Club conducted a fisheries claims workshop, which was attended by some 400 people in the fisheries sector. The Fund and the Club representatives restated their intention to take a flexible approach to the handling of fishery claims by using relevant information available such as government statistics or other published information and field surveys of the affected area and similar unaffected areas conducted by the experts engaged by the Fund and the Club. They also agreed that claims would be accepted from unregistered fishermen on the understanding that the requirement for registration had only recently been introduced and that the process for implementing this requirement was not yet complete. The Provincial Government's lawyers gave assurances that fishing by unregistered fishermen was not illegal for the time being. The claimants attending the workshop agreed with a proposal by the Fund and the Club to assess claims in groups such that all claims by fishermen engaged in the same type of fishery, using the same fishing gear and the same size of fishing boat, would be assessed in the same way. The Fund and the Club approved a simple claims registration form prepared by the Provincial Government, which all claimants would be required to complete.

5.10 The claimants attending the meeting supported the proposal by the Governor of the Province of Guimaras that he collate and verify all claims before they were passed on to the Club and the Fund and also take the responsibility for distributing the compensation to claimants. The Club and the Fund representatives stated that the Governor would need to obtain a power of attorney from every claimant and that the receipt, release and subrogation document would have to include the names of the individual claimants.

5.11 The representatives of the Fund and the Club stated that they hoped that the Club and the Fund would be able to make full compensation payments quickly if claims were supported properly. However, they agreed that interim payments could be made to claimants to alleviate hardship. The point was made, however, that fishing should be resumed as soon as practicable.

5.12 The Fund and the Club conducted a tourism claims workshop, which was attended by about 30 individuals engaged in tourism businesses. The Fund and Club representatives emphasised that those businesses that generated sufficient income as to require them to pay taxes should provide details of their income in previous years to support their losses. It was noted that some claimants did not earn sufficient income to pay taxes and that many do not appear to maintain financial records. It may therefore be necessary to adopt a more pragmatic approach to the assessment of their losses, for example by using a cost-based rather than a revenue-based business model. Such an approach would also have the benefit of enabling interim compensation payments to be made in cases of financial hardship.

5.13 The Provincial Government offered to represent the claimants in their dealings with the Club and the Fund. The Fund and Club representatives stated that claimants were free to submit their claims through the Provincial Government or directly to the Club or the Fund.

5.14 The Fund and Club representatives also met with representatives of the provincial and local governments of Negros Occidental and Iloilo and made presentations on the legal framework of the international compensation regime and the role of the Club and the Fund. It was noted that whilst the coasts of Negros Occidental and Iloilo had been only lightly affected by oil, the authorities had taken a number of preparatory measures for dealing with any pollution reaching their areas. The representatives of the Fund and the Club stated that the costs of such measures were admissible in principle, but that since the rate of release of oil from the wreck had decreased to a negligible quantity it was questionable whether a continuing high state of alert was justified.

5.15 The Fund and Club representatives met with the Philippines Coast Guard in Iloilo and explained the Fund's admissibility criteria in respect of claims for clean-up costs. The importance of

ensuring that the clean-up measures were technically reasonable and that the level of the response was proportionate to risk of further pollution from the wreck was emphasised.

5.16 The Fund and Club representatives met with representatives of the Department of Environment and Natural Resources (DNER) and gave a presentation on the Fund's policy regarding the admissibility of claims for environmental damage and post-spill studies, emphasising the fundamental differences between the scope of damages covered by the international regime and those covered by the United States Oil Pollution Act of 1990 (OPA 90). The Regional Director of the DNER gave an outline of the environmental impact studies being undertaken by the Department.

5.17 The Fund and Club representatives finally met with senior representatives of Petron Corporation. Discussions focused on the risk posed by any oil remaining in the wreck and whether Petron should make arrangements for providing a Tier 3 response capability such as the one offered by East Asia Response Ltd (EARL) in Singapore to be available to deal with any further spillage. The Fund and Club representatives expressed the view that any advanced arrangement was not justified given the stable condition of the wreck and bearing in mind that EARL was capable of responding at short notice anyway.

6 Claims for compensation

6.1 As at 29 September 2006 the Shipowners' Club had made interim payments to three contractors totalling US$486 000 (£259 000) in respect of clean-up costs. An interim claim by Petron Corporation for PHP80.1 million (£850 000) for the costs of shoreline clean-up was being assessed by ITOPF.

6.2 The Shipowners' Club has paid ¥45.1 million (£204 000) for the cost of the underwater survey of the wreck.

6.3 As at 29 September 2006 the Governor of Guimaras Province had collated some 3 000 claims registration forms from fishermen. These forms will be handed over to the fishery expert appointed by the Fund and the Club as soon as the remaining forms have been received by the Governor.

6.4 Twenty three claims totalling PHP435 000 (£4 600) from tourism businesses had been submitted by 29 September 2006. These claims were being assessed by the tourism experts appointed by the Fund and the Club.

6.5 It is too early to predict accurately the total damages resulting from the incident. Preliminary estimates indicate that it will be in the region of US$5-8 million (£2.8-4.4 million), excluding the costs of removing any remaining cargo from the wreck.

7 Proposed operation to remove the remaining cargo from the vessel

Underwater survey of the vessel

7.1 The Shipowners' Club contracted a Japanese salvage company to undertake an underwater survey of the vessel using a remotely operated vehicle (ROV). The purpose of the survey, which was carried out between 31 August and 2 September 2006, was to search for the vessel to confirm its location, depth and orientation and to assess the risk of further pollution. The Shipowners' Club and the 1992 Fund jointly appointed a marine casualty and salvage expert from London Offshore Consultants Asia (LOC Asia) to attend on-site to supervise the under-water survey and to interpret the survey findings.

7.2 The vessel was found in an upright condition on a seabed slope of 6º and with a trim by the stern of about 10º. There was a considerable build up of 6.5 metres of sediment at the aft end but none at the forward end. A triangular puncture type hole with base dimensions of about 28cm and height of about 15cm was found on the port side aft of the bulkhead between No.1 ballast tank

and the port anchor chain locker. Both the port and starboard shell plating showed signs of crumpling but no signs of cracks. There were no obvious signs of indentations, folds or cracks on the main deck. All lids of cargo tank hatches were found to be closed with the exception of No.4 port, the lid of which was partially ajar. No oil was seen emanating from this tank, which indicated that the entire contents were missing.

7.3 Oil was found to be leaking to varying degrees from pipes and vents and the tanklid of No.2 port cargo tank. However, following the closure of a number of vent valves by the ROV the total leakage was reduced to roughly 20 litres per hour.

Future pollution risk posed by the vessel

7.4 The Shipowners' Club and the 1992 Fund requested experts from ITOPF and London Offshore Consultants Asia (LOC Asia) to assess the pollution risk posed by the wreck of the *Solar 1*. A summary of their preliminary conclusions and recommendations are set out below and their full report is attached at Annex II to this document.

7.5 The experts noted that the apparent lack of damage to the main deck and the upper hull of the wreck and the absence of visible oil staining or oil collections around the structure suggested that there had not been a major release of oil from the cargo tanks and that the majority of oil may still be on board. However, this was not entirely consistent with observations of the oil at sea shortly after the incident and the extent of shoreline contamination, which suggested that at least 50% of the cargo of 2 081 tonnes of oil had escaped. The experts stated that without knowing the circumstances under which the vessel had sunk it was impossible to assess what kind of hidden structural damage had occurred and whether this could have resulted in substantial amounts of cargo being released. The experts considered whether it would be possible to quantify the remaining oil in the wreck using non-intrusive neutron bombardment technology, but the technique would necessitate the excavation of the sediment around the hull with the attendant risk of disturbing the vessel.

7.6 The experts considered that on the basis of the underwater survey the vessel appeared to be in a stable position and that under the prevailing conditions, movement of the vessel was unlikely. The experts noted, however, that the vessel was located in a seismically active area, having experienced two major seismic events in the last 50 years.

7.7 The experts were of the view that whilst the most likely outcome of leaving the oil in the vessel would be the gradual release of oil over many years through pinholes and cracks as a result of corrosion, a major release of oil due to the effects of a severe seismic activity on the structure or stability of the vessel could not be ruled out.

7.8 The experts noted the sensitivity of Guimaras Island and its vulnerability to pollution from the vessel during the south-west monsoon as demonstrated by the oil released following the incident, which has had a significant effect on economic resources, although it was too early to say what the environmental consequences have been.

7.9 The experts concluded that provided that the costs of an operation to remove as much of the remaining cargo from the vessel were not disproportionate to the risks of pollution damage resulting from the further release of oil, such an operation could, in their opinion, be justified.

Director's consideration

7.10 The Director notes that on the basis of the information available it could not be ruled out that substantial quantities of oil remained in the wreck. The Shipowners' Club and the Fund have explored the possibility of undertaking a study to measure the quantity of oil remaining on board using non-intrusive technology. However, indications are that the cost of such a study would be in the region of US$3-4 million (£1.7-2.2 million). Furthermore, the Director notes that in order to measure the oil in the vessel it would be necessary to excavate the sediment in which the stern section was embedded and that this could destabilise the vessel with the attendant risk of a

significant release of oil. The Director is therefore of the opinion that a study aimed at quantifying the remaining oil on board would not be justified.

7.11 Given the circumstances, in particular the likelihood that a significant quantity of oil remains on board and the fact that the vessel is located in a seismically active area and in close proximity to sensitive economic and environmental resources, the Director agrees with the experts from ITOPF and LOC Asia that provided that the cost of an operation to remove as much of the remaining cargo as possible were not disproportionate to the risks of pollution damage resulting from further releases of oil, such a removal operation would be reasonable and the cost of the operation would qualify for compensation.

7.12 The Director notes that the information available indicated that the costs of operations to quantify and remove any remaining oil would be between US$8-12 million (£4.4-6.7 million) depending on the amount of oil found on board. However, he notes that detailed proposals for the oil removal operation alone, including the cost element, are being sought by the Shipowners' Club from a number of salvage companies able to undertake the work and that the final costs are likely to be lower than these figures.

7.13 As indicated in paragraph 6.4, early estimates suggest that the level of the losses already sustained from the pollution from the *Solar 1* will be in the range US$5-8 million (£2.8-4.4 million). The Director notes that pollution damage to aquaculture ponds was not very severe as a result of earlier damage to the ponds caused by a passing typhoon. The Director also notes that the incident occurred outside the peak tourism and fishing seasons and that a further substantial spill of oil would have the potential to cause at least as much pollution damage as has already occurred. The Director is therefore of the view that the indicative costs for the oil removal operation are not disproportionate to the risks of pollution damage resulting from further releases of oil.

7.14 On the basis of the facts set out in paragraphs 7.10-7.13 the Director proposes that the costs of the operation for the removal of the oil should be considered admissible in principle.

8 Settlement of claims

The Executive Committee may wish to grant the Director the authority to settle all claims arising from this incident to the extent that they do not give rise to issues of principle not previously considered by the Funds' governing bodies.

9 Action to be taken by the Executive Committee

The Executive Committee is invited:

(a) to take note of the information contained in this document;

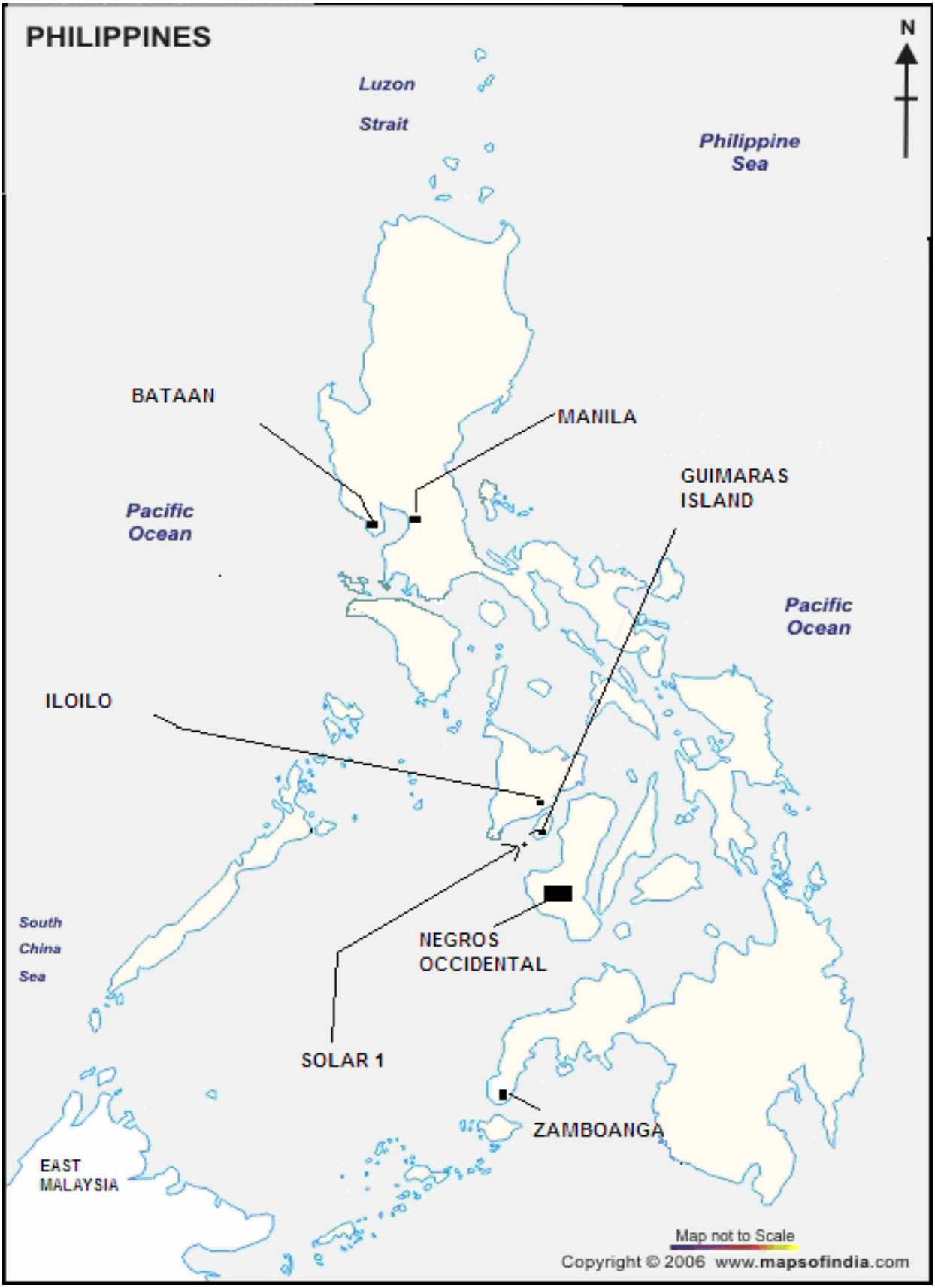
(b) to decide whether to authorise the Director to make final settlements of all claims arising from this incident to the extent that they do not give rise to issues of principle not previously considered by the Funds' governing bodies;

(c) to decide whether a claim for the cost of removing the oil from the wreck is admissible in principle; and

(d) to give the Director such other instructions in respect of the incident which it may deem appropriate.

* * *

ANNEX 1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ANNEX II

Qualitative Assessment of Risk Posed by the Wreck of SOLAR 1, Sunk off Guimaras, Philippines, 11 August 2006 – Preliminary Report

1. Introduction

Following the loss of oil from the sunken wreck of SOLAR 1 in the Philippines and the subsequent contamination of shorelines, principally of Guimaras Island, Western Visayas, ITOPF was requested to attend on site by the Shipowners' P&I Club, the insurers of the vessel, and the 1992 IOPC Fund. ITOPF provided advice and assistance to the Philippine authorities on response measures and preliminary advice to the P&I insurers and the Fund on potential claims. London Offshore Consultants (LOC) were engaged by the P&I Club and the IOPC Fund to locate and supervise the resources to conduct an underwater survey of the sunken wreck using a remotely operated vehicle (ROV) and to interpret the survey findings[1]. ITOPF and LOC were together tasked by the Club and the Fund to assess the risk posed by the wreck of SOLAR 1 and have set out their preliminary conclusions and recommendations in this report. LOC are continuing their investigation and data analysis to determine how the vessel sank and the likely quantities of oil left aboard the sunken wreck.

2. Circumstances of the incident

While on a voyage from Bataan, Philippines to Zamboanga, Mindanao, the tanker SOLAR 1 (Philippines flag, 998 GT, built 1988) fully laden with a cargo of about 2,200 tonnes of medium fuel oil, encountered difficulties in heavy weather, capsized and sank during the afternoon of 11th August. Two of the crew of twenty were lost but the remainder safely made it to shore on Guimaras Island. The vessel sank in water 630 metres deep about 10 nautical miles south of Guimaras, Western Visayas. Oil from the sunken vessel contaminated much of the south west coast of Guimaras including Taklong Island National Marine Reserve.

3. Risk assessment

The two issues that need to be addressed in assessing what risk is posed by the wreck are i) the risk of oil being released and ii) the consequences of any such release. Depending on the outcome of the assessment, preventive measures may be called for. In order to meet the criteria set out in the 1992 Civil Liability and

[1] London Offshore Consultants " SOLAR 1 – SHINSEI MARU ROV Survey – Preliminary Report", 11 September 2006

Fund Conventions ('92 CLC and FC) for compensation to be paid, the measures and the costs of any such measures must be reasonable.

3.1 Risk of oil release

3. 1. 1 Oil remaining in vessel

Table 1 below shows the cargo distribution on departure from Bataan, as provided by Petron (the cargo owner) to LOC.

Table 1 : Cargo distribution

Tank No.	**m^3**
1 port	105.257
1 starboard	105.652
2 port	253.157
2 starboard	253.477
3 port	269.456
3 starboard	267.943
4 port	274.690
4 starboard	270.521
5 port	197.472
5 starboard	197.814
Pipeline contents	8.190
Total	2203.629

In addition there were said to be an estimated 40 to 50 tonnes of diesel oil on board when the vessel sank and about 2 tonnes of lube oil although its location on the vessel was unknown.

The ROV survey was undertaken between 31 August and 2 September and found that the vessel was upright with a trim by the stern. The hatch cover to tank No. 4 Port was found to have been displaced but other than this there was very little evidence of damage at deck level and all the other tank tops were secure. The vessel had settled into soft mud so it was not possible to assess the extent of any bottom damage, however, there was substantial vertical creasing at various

locations along the shell plating indicating that the vessel had suffered substantial hogging, possibly on impact with seabed. At the time of the survey there was little evidence of oil leakage and the leaks that were observed from a small number of locations were estimated to amount to only some 10 – 20 litres per hour.

A video recording of an aerial survey understood to have been conducted two days after the vessel sank, on 13 August, was made available to ITOPF by the Philippines Coast Guard (PCG). The video indicated that a substantial quantity of oil was being lost from the wreck. ITOPF has estimated that as much as 10 – 20 tonnes per hour were being lost although little reliance can be placed on a quantitative estimate based on a video recording. The main uncertainties arise because the thickness of oil on the surface can only be judged by its appearance and the estimate is based on a snapshot in time. Nevertheless, the video and the degree of contamination of the shoreline both point to a substantial loss of oil from the wreck in the early stages of the incident. On the basis of ITOPF's estimate it is possible that at least half of the cargo has been lost.

In assessing the likelihood of oil remaining within the wreck and probable quantities, the clear conclusion can be drawn from the ROV survey that the contents of 4 Port cargo tank, some 275 m^3, are no longer on board. There was evidence that oil had also leaked through the cargo tank vents and through the vents to some of the double bottom ballast water tanks. In order for oil to have got into the double bottom water ballast tanks it was thought that some damage may have occurred as a result of the vessel capsizing. One possible hypothesis is that since the vent line to the cargo tanks was open and damage may have occurred that allowed water into the bottom of the tanks, a substantial quantity of oil may have been lost through these vents. It is also possible that internal structural damage allowed some oil from tanks adjacent to No.4 Port to escape. However, neither the PCG video nor the ROV survey provide more than an indication of likely losses and indeed the lack of damage at deck level and to the upper hull strongly suggest that a considerable proportion of the cargo could still remain trapped within the hull.

One approach which might be considered would be to make a better assessment of the quantity of oil remaining in the wreck using high energy neutron bombardment technology. However, this technique would require the sediment to be removed from either side of the hull with the risk that the stability which is presently being provided by the mud would be lost.

3.1.2 Likelihood and nature of possible releases from the wreck

The vessel was found to be in a stable position, with the stern partially buried in soft mud. The vessel has come to rest on a slight incline, facing up the slope, but

LOC judge that the build up of sediment aft of the vessel is such that under the prevailing conditions movement down the slope is unlikely. No currents were observed at the sinking site and the wreck is at a sufficient depth not to be disturbed by typhoons. Similarly, it is too deep to be disturbed by trawlers. However, the wreck is in an area of seismic activity (see Figures 1 and 2). A major fault line runs 25 nautical miles to the west of Guimaras. The most significant recorded seismic event took place in 1948, measuring 8.3 on the Richter Scale. The last major event was centred at Panay near Iloilo in 1990 when a tremor with a magnitude of 7 was recorded[2].

On the assumption that there could still be a substantial quantity of oil within the wreck, for there to be a catastrophic release, the vessel would have to break up or fall onto its side allowing the possibility of any oil trapped beneath the deck to be released. The consequence of earthquakes and related movement of the seabed on the wreck are not known at present but obviously could be severe. However, it seems most likely that in the case of all but the most severe seismic events, the vibration would cause the wreck to sink deeper into the mud, increasing its stability. For the vessel to suddenly move, the support of the mud would have to be removed unequally from one side. While this may not be beyond the bounds of possibility, it would seem unlikely.

As stated above, the rate of release estimated from the ROV survey was 10 – 20 litres per hour. Current observations of the oil arriving at the sea surface suggest that the rate is now perhaps ten times less. As these observations indicate, the more likely scenario is that the oil will continue to leak at a decreasing rate as the source of the present release is depleted. In the long term, however, the tanks are likely to corrode leading to the development of pinholes and fissures allowing the slow escape of oil at much the same level as is currently observed. Drawing on the example of vessels sunk during hostilities in World War II[3] it may be fifty years or more before the effects of corrosion are apparent. On the other hand there are numerous other examples of vessels which have sunk with oil cargo on board but which after the initial sinking have not been followed by reports of further releases.

3.1.3 Summary of the risk of oil being released

- The likelihood that substantial quantities of oil remain within the wreck cannot be discounted.

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[2] Personal Communication - Director, Philippine Institute of Volcanology and Seismology to Deputy Director, IOPC Funds

[3] http://www.iosc.org/docs/IOSC_Issue_2005.pdf International Oil Spill Conference (IOSC) 2005 Issue Paper "Potential Polluting Wrecks in Marine Waters"

- The risk of a catastrophic release of oil or even the loss of oil in substantial quantities as the result of the vessel breaking up or falling onto its side is low and could only be foreseen in the case of a particularly severe seismic event close to the wreck.
- The more likely outcome is that in the long term, probably in excess of fifty years, oil would be released at a very slow rate through pinholes and cracks formed as a result of corrosion.

Figure 1:

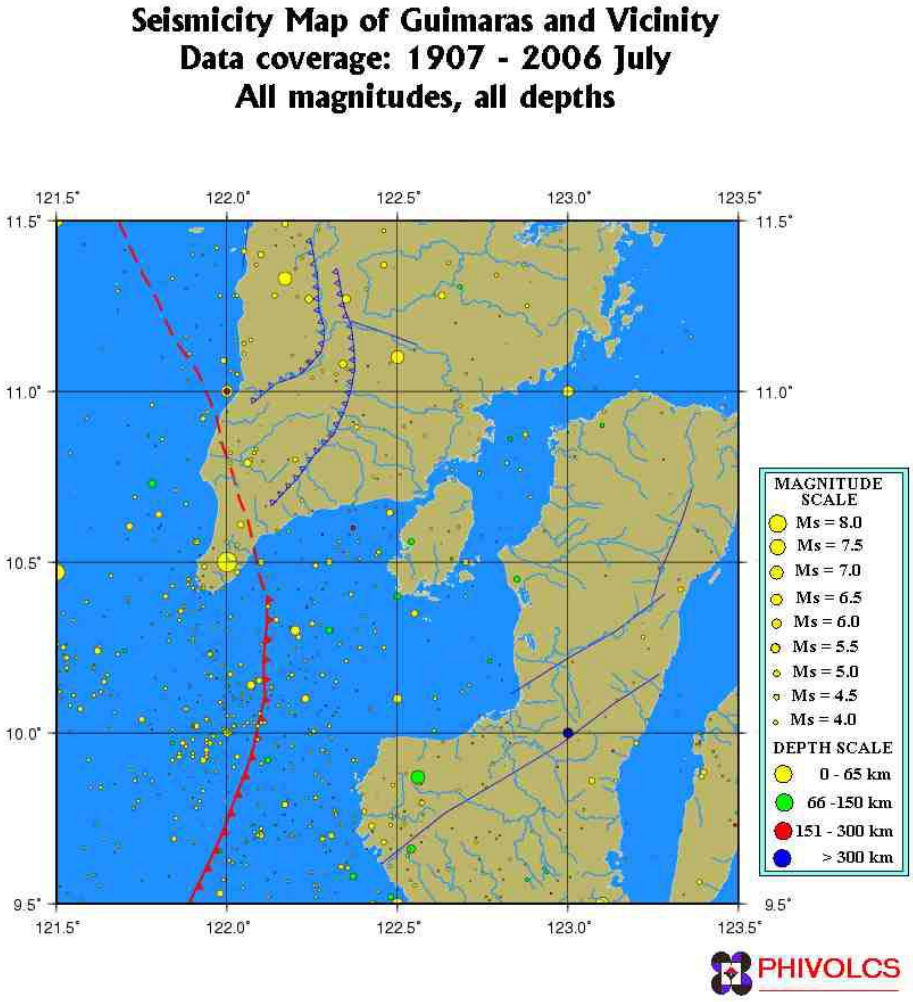
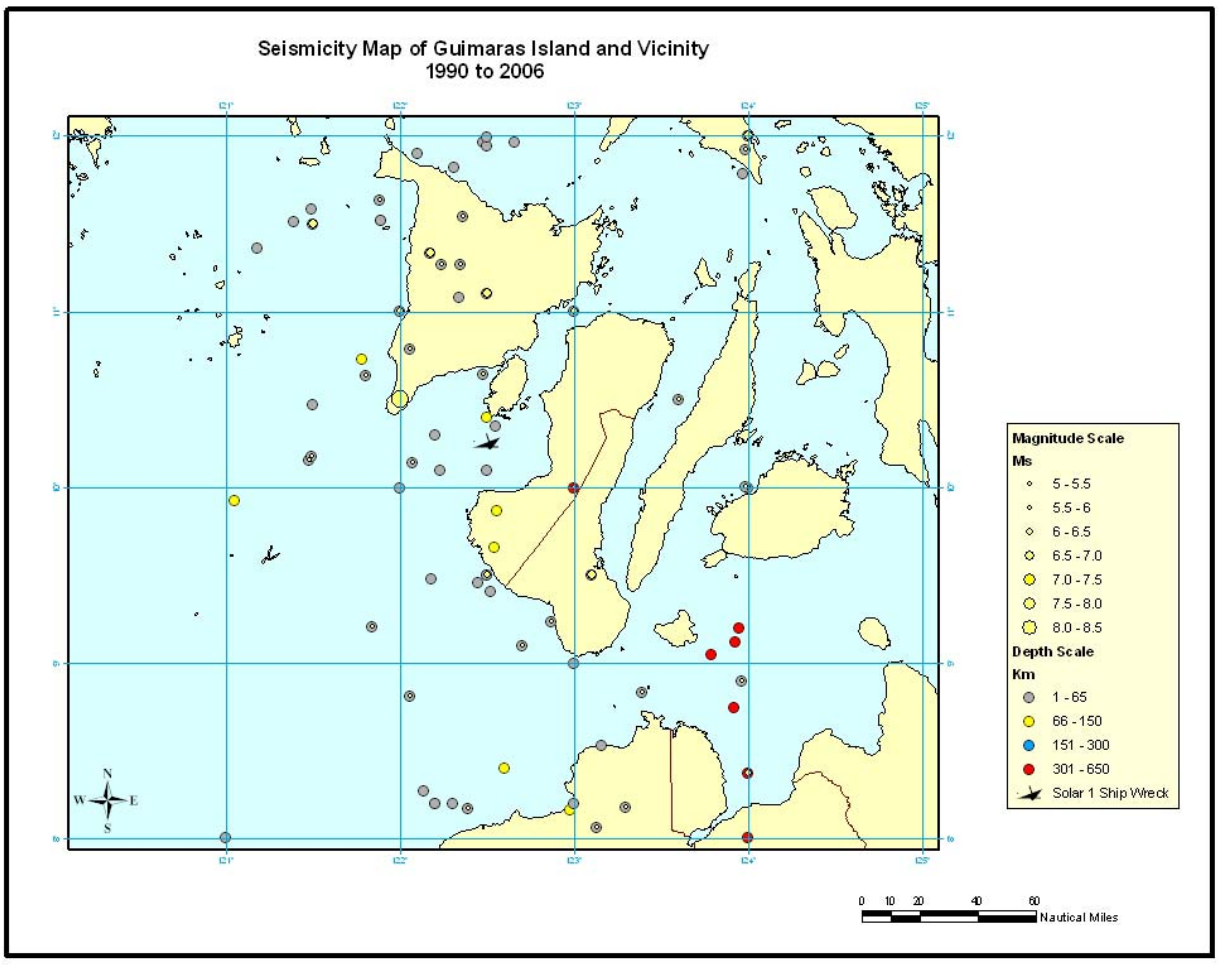


Figure 2: Seismic Activity in Vicinity of Guimaras Island



3.2 Consequences of the further loss of cargo

3.2.1 Characteristics of the area

The Guimaras Straits contain a group of islands, the shorelines of which include sandy beaches, rocky shores, coral reefs, seagrass beds and mangroves. Fisheries are locally important and aquaculture is wide-spread. Subsistence level gathering of fish and shellfish is practised on the fringing reefs along the south coast of the island. In the dry season, during the northeast monsoon, salt production takes place. An internationally renowned aquaculture research facility is located on the west coast of the island. Guimaras Island and off-lying islets also support a modest tourist industry.

3.2.2 Movement and fate of the oil

The island is subject to monsoon winds with the southwest monsoon prevailing from May to September and the northeast monsoon from October to April. Typhoons are experienced between July and December. During the southwest monsoon, as demonstrated by this incident, the island of Guimaras and the outlying islets to the south are vulnerable to oil lost from the wreck.

Table 2: Physical and chemical properties of SOLAR 1 cargo, Industrial Fuel Oil (IFO-06-08-149-10)

PROPERTY	TEST METHOD	Result
DENSITY @ 15^{0}C, kg/m^3	ASTM D1298-99	**965.3**
FLASH POINT, ^{0}C	ASTM D93-02a	**75.0**
POUR POINT, ^{0}C	ASTM D97-04	**-6**
VISCOSITY @ 50^{0}C, mm^2/s	ASTM D445-04	**216.9**
SULFUR, % mass	ASTM D4294-03	**2.92**
WATER and SEDIMENT , % volume	ASTM D1796-02	**0.20**
WATER by DISTILLATION, % volume	ASTM D-95-99	**0.20**
SEDIMENT by EXTRACTION, % mass	ASTM D473-02	**0.02**
CARBON RESIDUE (CR), % mass	ASTM D4530-03	**10.5**
ASH, % mass	ASTM D482-03	**0.002**
ASPHALTENE, % mass	ASTM D3279-01	**3.2**
CALORIFIC VALUE, BTU/lb, HHV	ASTM D4809-00	**18,560**
LHV		**17,555**
TRACE METALS, ppmw:		
Sodium (Na)	ASTM D5863-00a	**18**
Vanadium (V)	ASTM D5863-00a	**45**

The physical and chemical characteristics of the SOLAR 1 cargo as provided by Petron are set out in Table 2. The sea surface temperature at present is 30°C and is expected to drop only slightly to 27°C during the northeast monsoon. The temperature at the seabed was recorded during the ROV survey as 11°C and is unlikely to vary significantly. The water temperature at the seabed is well above the pour point of the oil which can be expected to flow relatively easily from any holes which develop in the hull. The warm surface temperature would allow the oil to spread rapidly over the sea surface and typically as much as 20% of this type of oil will evaporate. However, during the southwest monsoon, when conditions drive the oil towards the shore, there would be little opportunity for any substantial quantity of oil to dissipate before reaching the shoreline.

Nevertheless, it should be noted that at the present rate of release, the oil forms a sheen on the surface which dissipates naturally within three miles of the point at which the oil reaches the surface.

3.2.3 Probable effects

The characteristics of the area clearly illustrate the sensitivity of Guimaras Island to oil pollution. It is already clear that the incident has had profound economic consequences for some sectors but it is still too early to say what the impact to environmental resources has been. The risk of the sunken wreck being the source of an incident resulting in similar impacts to the present one is judged to be low. However, the consequences of oil being released at a similar rate to that presently observed could become significant.

The following factors have to be taken into account.

- The current distance within which oil is dissipating is of the same order of magnitude as the distance to the shoreline. A small change in conditions either in the rate of release or in weather conditions could result in the oil reaching the shoreline.
- The presence of oil sheen on the water is likely to interfere with fishing within the affected area. Coastal fishing is practised within 15 km of the shore. Fishing would be precluded from the sea area affected by sheen particularly at night when it would not be possible to see the oil on the surface.
- If a release similar to that currently observed was to continue in the future, and a thin sheen of oil did reach the shoreline, it would likely disrupt the gathering of fish and shellfish from the fringing reef on the southern coast of the island.
- Some of these reefs dry out at certain states of the tide and so there is also the risk of contamination of the reefs themselves to consider.

- As far as it is possible to determine to date, the immediate impact of the oil on mangroves does not appear to have been severe. However, the experience of other incidents where similar habitats have been repeatedly oiled indicates that greater damage can be inflicted by chronic multiple oiling than by a single acute episode.

3.2.4 Summary of the probable consequences of oil being released

- The consequences of an instantaneous release of a substantial quantity of cargo during the southwest monsoon would be similar to those already experienced.
- In the more likely event of a slow release sometime in the future at a similar level to that being currently experienced (a few litres per hour), there is a moderate risk of damage to mangroves, coral reefs and disruption to coastal and shore fisheries over a limited area close to the wreck location.
- The fishing activity potentially at risk from a future slow release of oil is artisanal, much of it conducted at a subsistence level so that the economic impact would therefore be relatively small.

4. Conclusions

- On the basis of information currently available, the likelihood that substantial quantities of the medium fuel oil cargo remain within the wreck cargo cannot be discounted.
- The most likely scenario is that at some time in the future oil will leak out at a slow rate, no more than a few litres per hour. However, during the south west monsoon, oil sheen from such a release could reach the shoreline. As a consequence there is a moderate risk of damage to mangroves, coral reefs and disruption to coastal and shore fisheries over a limited area.
- The consequences of an earthquake close to the wreck are not known but the possibility cannot be dismissed that substantial quantities of oil would be lost with environmental and economic consequences similar to those experienced in this incident. The last such events within the vicinity of Guimaras Island occurred in 1948 and 1990.
- Provided that the costs of an operation to remove as much of the remaining cargo as practicable were not disproportionate to the risks of pollution damage resulting from the further release of oil from the wreck of SOLAR 1 identified above, such an operation could, in our opinion, be justified. Precautions would also need to be considered to meet the risks presented by the removal operation itself.

ITOPF **LOC Asia**
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