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COST OF SALVAGE— A COMPARATIVE FORM APPROACH

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ABSTRACT

The most important principle of salvage is the “No Cure-No Pay” basis, if there is no recovery, there is no payment, whatever the expense of the operation. However, this principle has changed in recent years to reflect the public interest in prevention of damage to the environment (Mudric, 2010). The salvor can now contract in such a way that he is shielded from loss when responding to high risk or low value casualties (so called as “No Cure-Some pay”).

Salvage is a high-profit business and high-risk as well in the world. The case of the Costa Concordia - by no means one of the largest cruise ships - has highlighted many things, not least that, despite technological advances, casualties will continue to happen and they can happen to mega ships. Different forms of salvage contract will result in different salvage awards. The aim of this article is to provide a methodology to measure the costs of salvage from the perspective of shipowner.

I. INTRODUCTION

Salvage is not only an ancient right but one peculiar to maritime law. Marine Salvage has a long history since three thousand years ago under the Rhodian maritime code, which was applied in ancient Greece and the Mediterranean, volunteer salvor was held entitled to be rewarded for his services. The principle was adopted in Roman law. The fundamental concept of salvage law is that the salvor should be encouraged by the prospect of an appropriate salvage award to intervene in any casualty situation to save the ship, property and, in particular, to save life and prevent pollution. The salvor’s right to a reward is based on na-

tural equity, which allows the salvor to participate in the benefit conferred to shipowner, the ship itself and the ship’s cargo.

Marine Salvage is the salvage of marine property, in essence, saving it from certain marine peril and thereby bestowing upon the owner of a distressed vessel a benefit, that were it not for the salvor, the owner’s property would be lost or significantly damaged. Marine salvage often arises when a vessel (or any marine property of value) is in distress due to some type of emergency, be it a hurricane that puts all vessels in the area at risk, or a localized danger, such as the endangered vessel being on fire or having lost power. No matter what the cause of the danger is, a marine peril must have put the vessel at risk of damage or of complete loss.

The salvage market is highly competitive, with around 5 to 6 global salvage operators dominating the scene. The International Salvage Union (ISU) is an association representing the interests of 60 major salvors worldwide, who conduct over 90% of all salvage activity. Membership of the ISU is restricted to those companies with a record of successful salvage and pollution prevention. Members are required to have the high level of expertise expected of the professional salvor.

In addition, Associate Membership of the ISU is open to all organizations and professionals with an interest in salvage, including P & I Clubs, other insurers, law firms, ports, national response organizations, shipowners and managers, coastal local authorities, environmental organizations, clean-up specialists and others. The ISU has 72 Affiliated and Associate Members.

In 1978, the ISU commenced an Annual Statistical Survey. This data now spans a 37-year period and includes around 6,000 salvage operations (of which 50% carried out under LOF). The salvage award paid out to the salvor is often very generous and much more than normal pay for work performed. A salvage reward is based on the salvaged values and other criteria such as the skill and efforts of the salvor. Every year, whilst engaged on LOF contracts, ISU salvors recover property valued in excess of US\$1 billion (US\$1.65 billion in 2012).

II. PURE SALVAGE AND CONTRACT SALVAGE

1. Definition and the Essential of Pure Salvage

The 1910 Salvage Convention refers to “assistance and sal-

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vage". Although the 1910 Salvage Convention does not treat them differently, it does expressly indicate them as "two kinds of service" (Huang, 1995). A distinction has long been drawn in the civil law jurisdictions on the continent of Europe between "salvage" (broadly limited to services rendered to an abandoned vessel) and "assistance" (services to a vessel in distress but which has not been abandoned). English law has never recognized this distinction but seeks simply to reward a salvor depending on the nature of the danger from which the salvaged property is salvaged (Shaw, 1996). The 1978 Amoco Cadiz disaster provided the impetus for a number of changes in the international law of salvage, which ultimately resulted in the 1989 IMO International Convention in the International Law of Salvage (Redgwell, 1990).

Article 1 of the International Salvage Convention 1989 provides: "For the purpose of this Convention: (a) Salvage operation means any act or activity undertaken to assist a vessel or any other property in danger in navigable waters or in any other waters whatsoever."

It is clear from the Article that the Convention is concerned with action undertaken to assist vessels or property. Although the Convention and the Merchant Shipping Act 1995 also contain some provisions for services which are (actually or potentially) beneficial to human lives or the environment, they are dependent on action taken to assist maritime property.

What Article 1 does not expressly state is whether, to qualify as salvage under the Convention, it is sufficient that the relevant act or activity has the *effect* of assisting maritime property or whether that must have been the actor's *intention*. In practice, it is unlikely that the distinction can be or will be made. Furthermore, at common law, the former is sufficient; and this will probably also be the position under the Convention.

The value of the salvaged property is also relevant to satisfying the requirement of success or, under the Convention, a "useful result". However, this requirement is a prerequisite of an award of salvage operation, not of whether there is a salvage operation in the first place. The distinction between a salvage operation and useful result is made clear by the Convention's references to "salvage operations which have had a useful result" and "if the salvage operation have had no useful result." There may therefore be a salvage operation without a useful result in preserving property. If it were otherwise, there would have been an unintended limitation on the Convention's provisions for special compensation (Rose, 2002).

2. Contract Salvage

A claim for salvage is a claim either for "pure salvage" or "contract salvage." In pure salvage (also called "merit salvage"), there is no contract or preexisting agreement between the owner of the goods and the salvor. The salvor of property under pure salvage must bring his claim for salvage in a court which has jurisdiction or go to arbitration, and this will award salvage based upon the "merit" of the service and the value of the salvaged property. For the salvor as maritime businessman, pure salvage is a treacherous and risky business. Pure salvage leaves too many difficult questions unanswered: under whose law the matter, if

it becomes a case will be handled; will there have to be a suit for the salvage award, or can there be arbitration; etc. As a result, commercial salvage, salvage services provided by those who purport to make their living as salvage contractors, is normally performed under contract (Cohen, 1982).

The absence of any element or the existence of contract for salvage will bar a claim for pure salvage award. Claims for pure maritime salvage are rare in contemporary times, due to the likely involvement of commercial parties and their preference for contract salvage. However, these commercial parties do not always have the opportunity to contract for salvage, such as in cases of immediate danger and emergency (Zubic, 2011).

In contract salvage, the owner of the property and salvor enter into a salvage contract prior to the commencement of salvage operations and the amount that the salvor is paid is determined by the contract. Salvor enters into an agreement to use "best endeavors" to save maritime property. This can be a fixed amount, based on a "time and materials" basis, or any other terms that both parties agree to. The contract may also state that payment is only due if the salvage operation is successful (No Cure-No Pay basis), or that payment is due even if the operation is not successful.

The law of salvage rewards volunteers who render valuable services to recognized subjects of salvage in danger. The nature of this legal right is neither consent-based, nor contractual in nature, and appears as antithetical to the contract law, being based on public policy and equitable considerations. Nevertheless, in modern times contracts control salvage operations with such frequency that contractual salvage has become the norm, usually under a standard form contract known colloquially as the Lloyd's Open Form (Lennox-King, 2007).

III. VARIOUS SALVAGE CONTRACT FORMS

1. National Forms

Except the world well-known Lloyd's Open Form (LOF), there are also various alternative "national" forms of salvage contract, such as U.S. Form, Japanese Form, Beijing Form, Moscow Form, Turkish Form and etc., but these contracts are generally only used by vessels and salvors who are in the waters, or who are nationals, of the particular countries concerned.

- (1) Beijing Form - Approved by China Maritime Arbitration Commission (CMAC). Named China Maritime Arbitration Commission Standard Form (CMAC 1994).
- (2) French Form - Approved by Chambre Arbitrale Maritime de Paris. Named as Contrat d'Assistance Maritime - Form of Maritime Salvage Agreement.
- (3) German Form - Approved by German Maritime Arbitration Association. Named as Conditions of German Court of Maritime Arbitration (Deutsches Seeschiedsgericht), Hamburg.
- (4) Japanese Form - Approved by Japan Shipping Exchange, Inc. Named as The Documentary Committee of The Japan Shipping Exchange, Inc. - Salvage Agreement (JSE 91).

- (5) Moscow Form - Approved by Maritime Arbitration Commission at the Chamber of Commerce, Moscow. Named as USSR Salvage Contract (MAK form).
- (6) Scandinavian Form - Approved by Scandinavian Tugowners Association. Named as Skandinavian Salvage Contract (1987).
- (7) Turkish Form - Approved by Turkish Maritime Organization. Named as Turkish Maritime Organization Salvage and Assistance Agreement.
- (8) U.S. Form - Approved by The Society of Maritime Arbitrators, Inc. Named as U.S. Open Form Salvage Agreement (MARSALV).

Among the above-mentioned national forms, “No Cure-No Pay” is the basic principle of the contract and the symbol is printed on its face, except the CMAC 1994. To modify the Beijing Form at appropriate timing by making reference to LOF is necessary for facilitating and ensuring that it continues to play an important role in the maritime salvage community in China (Zhao, 2009). In practice, the MARSALV form is seldom signed until the salvage operation has been completed successfully, because it is often not practicable to agree the terms in advance, particularly if the peril faced by the vessel is acute (Davies, 2009). Unlike the LOF, the JSE 91 rewards salvor on the costs he has incurred instead of the total value of the property he has salvaged.

2. BIMCO Forms

BIMCO (The Baltic and International Maritime Council) is the recognized world leader in the production and revision of standard maritime contracts and clauses. The Documentary work of BIMCO has been one of the cornerstones of the association for over 100 years because of its importance in providing a tangible contribution to trade facilitation, harmonization and the raising of contractual standards within the maritime industry, consistent with our stated vision and mission.

TOWCON/TOWHIRE 2008 (BIMCO, 2016a)

A typical example would be a vessel which has lost engine power and is drifting, but there is no imminent danger. The weather may be calm and there is no coastline or reef in the path of the drifting vessel. Therefore, there is no immediate threat to the ship or to the environment and there is time to consider what measures should be used. The only service needed may be a tow to a harbor with the appropriate repair facilities. In such a situation the preferred contract is “TOWCON”/“TOWHIRE” (Arnesen, 2012).

WRECKFIXED/WRECKHIRE 2010 (BIMCO, 2016b)

A typical example would be a vessel which has run aground, though not very heavily. The grounded ship is situated in sheltered waters so that the risk of further damage being caused by waves or a shift in the weather or wind direction is very low. Consequently the risk to the environment is also very low. The hull is not breached, at least not by other than small holes which can easily be temporarily patched by the salvor. Refloating of

the vessel may be done by shifting of ballast water and bunkers between tanks. Alternatively clean ballast water may be discharged into the sea and some cargo or bunkers may be removed to lighten the vessel before refloating it at high tide. This kind of situation does not call for desperate or hasty measures and the preferred contract is “WRECKFIXED”/“WRECKHIRE” (Arnesen, 2012).

3. ISU Forms

An example of fixed price salvage contract published by the ISU is the lump sum contract “SALVCON 2005”. This agreement is intended to be used by a salvor working under Lloyd’s Form, or similar contract, who wishes to engage additional assistance, but on a lump sum, non-award sharing basis, as distinct from the widely used ISU Award Sharing Sub-Contractors Agreement, or the alternative Daily Hire Sub-Contract Agreement “SALVHIRE 2005”.

Equally a tug owner who wishes to hire out his tug to a salvor on a lump sum basis may offer its services on the basis of SALVCON 2005. The formats of these documents are very similar to the BIMCO Towage Agreements, TOWCON/TOWHIRE and the BIMCO Wreck Removal Agreements, WRECKCON/WRECKHIRE.

Strictly speaking, these contract forms fall outside the concern of this article and do not count.

4. Lloyd’s Open Form (LOF)

LOF, however, remains the most commonly used standard contract form. Since 1978 ISU members have performed around 6,000 salvage operations of which approximately 50% were carried out under LOF, the “No Cure-No Pay” salvage contract. The “salved value” of ships, bunkers and cargoes involved in these operations totaled in excess of US\$35 billion. The bottom left hand corner of every LOF lists dates on which previous editions of the form have been published. The earliest date is January 15, 1908, but several forms of salvage agreement acceptable to Lloyd’s had been in existence for many years. The latest version is LOF 2011 after eleven times of amendment in one hundred years.

Although the LOF is a contract, salvage services performed pursuant to the LOF are considered to be pure salvage, not contract salvage, because the LOF provides that the contract salvor is engaged on a “no cure, no pay” basis, and it leaves the reward amount open in the event of success.

IV. STATISTICS REVIEW

1. LOF Cases Decline Rapidly but Award is Increasing

The economics of the industry have changed. Improvements in safety regimes have reduced the number of casualties. There are fewer cases for salvors and yet society’s expectations about protection of the environment have increased, shore-based authorities tend to be more heavily involved and it means that modern cases may well be more complicated (ISU, 2012).

Traditional “No Cure-No Pay” salvage of marine in peril is

Table 1. LOF & SCOPIC Statistics.

Year	New cases	SCOPIC invoked	Salvage Values (US\$ million)	Award to Values (%)
2006	80	11	85.8	13.6
2007	107	23	392.7	14.8
2008	83	15	299.4	7.1
2009	122	17	571.1	20.4
2010	111	21	65.9	14.4
2011	106	11	69.3	42.5 ¹
2012	122	15	116.6	9.0
2013	61	14	65.3	53.9 ²
2014	37	7	95.8	37.9 ³
2015	50	12	105.0	28.1 ⁴

Source: Lloyds

¹This figure is affected by several Awards issued in complex, low value cases against unrepresented interests, represented parties having already settled their proportion of the Salvors' claim.

²⁻⁴ Ditto.

Table 2. Environmental Salvage, LOF and Other Salvage Contracts.

Year	Cases	LOF	Towage	Wreck	JSE	Other /Fixed price
2009	244	56	n/a	11	39	138
2010	166	57	n/a	9	n/a	100
2011	221	55	n/a	17	n/a	149
2012	188	52	32	42	31	31
2013	190	44	31	31	54	30
2014	216	29	29	61	19	78
2015	185	25	40	21	10	89

Source: ISU

in slow but steady decline throughout the world (Davies, 2009; Mudric, 2013). According to Lloyd's Statistics, there were 255 LOF salvage cases in 1980 but only 80 in 2006 and 37 in 2014. In the 1990s the average LOF case number was 138.7 per year and average award was 9.56% of property salvaged (the highest was 18.8% in 1999). In the 2000s, the average LOF case number decreased to 102.6 per year but average award was up to 12.99% of property salvaged (the highest was 20.4% in 2009). In 2015, there were 50 LOF salvage cases and the average award was 28.1% of property salvaged (Lloyd's, 2016) (See Table 1). In Norway it has been normal that a salvage reward amounts to 4-5% of the salvaged values, while in England a reward of 15-20% of the salvaged value is not unusual.

It should be noted that approximately 75% of these cases were settled amicably between the parties without need for recourse to arbitration and that therefore the "Award" data shown reflected only those cases that did proceed to arbitration and in which an Award was issued (Lloyd's, 2013).

According to ISU 2015 Statistics, revenue from Lloyd's Open Form (LOF) cases at US\$ 83 million was the lowest in more than a decade. 2014 saw the lowest annual number of LOF cases on record (37) and this may be reflected in the 2015 ISU statistics. At the same time, revenue from operations conducted under con-

tracts other than LOF was the second highest at US\$ 98 million and showed a gently rising trend. Revenue from LOF cases has fallen to below 50% of the total of all "dry" salvage revenue for the first time - 46% in 2015 (55% in 2014). Similarly, the number of LOF cases as a percentage of all "dry" salvage cases was the lowest at 16% in 2015 (23% in 2014) (ISU, 2016). It also reflected the increasing trend to use other commercial contracts and terms in place of LOF (See Table 2).

An Easy Example:

A 10,000 TEUs container ship is insured for US\$ 100 million. Regardless of her cargo value and deduct 30% damage to the vessel, 10% salvage award is US\$ 7 million. It is an incredible figure to the highest profit business in the world. LOF seems like an "open cheque" for the salvor and the decline in LOF cases is just a matter of time.

According to IUMI 2015 Report, claim frequency is down after peak in 2008 and is long-term positive to stable trend. This trend basically matches with the LOF's decline.

2. Environmental Salvage (So-Called Liability Salvage) is Increasing

The 1989 Salvage convention extends "a guaranteed reim-

bursement of the expenses” to salvage services rendered to all vessels which threaten damage to the environment. A person rendering salvage services to such a vessel can be sure of recovering his expenses, and if his services actually prevent or minimize damage to the environment, special compensation representing his expenses plus a “mark-up” of up to 100% (Shaw, 1992).

It would be salutary for courts and arbitrators undertaking that task to bear in mind the new focus which the 1989 Convention has brought to bear on the protection of the environment. In particular, effect should be given as far as possible to the new policy, which is directed to encouraging salvage companies and State authorities to establish and maintain the resources needed to avert or minimise the ecological damage which a significant maritime misadventure can present. It is also concerned to provide an incentive for the speedy deployment of those resources without first conducting a detailed cost-benefit analysis by reference solely to the prospects of recovering a traditional salvage reward (Ryan, 2009).

Professional salvors have begun to focus on pollution prevention, which forms an increasingly large proportion of their work. That trend is already far advanced in the United States, where the U.S. Coast Guard (USCG) plays the principal role in handling vessel casualties that involve actual or threatened pollution, with professional salvors often relegated to a consulting position with no direct input decision making (Davies, 2009).

The ISU’s Pollution Prevention Survey began in 1994. In the 19 years to end-2013, ISU members have salvaged 18,575,702 tonnes of potential pollutants, an average of just under one million tonnes per year. This consists of 13,142,007 tonnes of oil cargoes; 1,307,706 tonnes of chemicals; 1,616,101 tonnes of bunker fuel and 2,818,565 tonnes of “other pollutants”.

3. P & I Club is Involved and No More “Escape”

Against the background of the problems with special compensation in the Salvage Convention 1989, discussions took place between the ISU, the International Group of P & I Clubs and representatives of hull and cargo insurers with a view to devising an acceptable substitute for the special compensation provisions of the 1989 Convention. The essential aims were to define with greater certainty the circumstances in which salvor would receive remuneration on terms other than “No Cure-No Pay” and to simplify its assessment, whilst improving the arrangements for provision of security as well as consultation among the parties. The product of these discussions was SCOPIC. SCOPIC is an acronym for “special compensation protection and indemnity clause”. It is important, however, to have well in mind that the “special compensation” referred to has nothing to do with special compensation under Article 14 of the Salvage Convention 1989. It is an adjunct or supplement to LOF. SCOPIC clauses came into force formally in August 1999. They are now considered in outline together with the involvement of the insurance industry (Brice, 2000).

SCOPIC operates by guaranteeing the salvor a tariff rate in its Appendix A together with a guaranteed 25% standard bonus:

this bonus in certain circumstances provided in SCOPIC subject to modification. Since 1999 version, there are 2000, 2005, 2007, 2011, 2014 and 2017 versions to reflect inflation. Since its introduction, SCOPIC has become an important part of the salvage landscape. It has become the preferred choice for many salvors in dealing with casualties where the prospects of a substantial traditional salvage award may seem slim (Kallimasiotis, 2009).

Whilst the salvage operation is in a critical situation with high possibility to fail, salvor is no longer afraid of receiving nothing for his efforts. SCOPIC guarantees “NO Cure-Some Pay” from the P & I Club or Liability Insurers and the rates are profitable. One of the most important objectives of the LOF contract is that it is considered to be likely fair to salvors, property owners and underwriters. However, there are practical problems that cause certain disadvantages when applying the SCOPIC clause. If the salvage was successful and the salvaged fund was large, salvors may have made more money on a straight LOF claim without SCOPIC, because of the 25% discount if the fund is large enough (Pardo, 2013). Even so, the ISU is not satisfied for the award and considers various proposals for possible reform of the law and practice of salvage. Among these is a proposal, sponsored by the ISU, for the provision of further remuneration to salvors through the creation of a new “environmental salvage” award (Rue and Anderson, 2012).

From the point of view of Hull Insurers, discussions on a possible amendment of the Salvage Convention to allow the introduction of a new environmental salvage award continues through IUMI’s new Salvage Forum. The Nordic Association of Marine Insurers (Cefor) is of the opinion that marine insurers are better off keeping the existing and well-functioning salvage award system, work out as a compromise between all the various interests. The unbalance of this system may cause disputes and delay salvage operations and settlements, and is for these reasons not recommended by the Association (Cefor, 2012).

There were 14 SCOPIC cases invoked in LOF in 1999 and the number has been increasing steadily. In the 2000s, the average case number was 16.7 per year. In 2015, there were 12 cases (See Table 1).

V. PRE-ENGAGED SALVAGE CONTRACT UNDER AUTHORITY’S CONTROL

1. U.S. Salvage and Marine Firefighting-SMFF

Cohen’s studies suggested that USCG is taking a more central role in the salvage industry (Cohen, 1982). To some extent, the changing role of professional salvor reflects an increase in the involvement of government bodies in salvage operations, particularly in cases where there is a threat of environmental pollution. Since February 22, 2011, all oil tankers and tank barges operating in U.S. waters must list in their USCG approved Vessel Response Plans (VRP) a Salvage and Firefighting (SMFF) contractor capable of meeting the regulatory requirements. Contract for SMFF services must include a funding agreement which is a mechanism to ensure that there is no delay in response due to

contract negotiations. According to The Oil Pollution Act of 1990 (OPA-90) Regulations (Part 33 CFR 155, et. seq), non-tank vessel owners are required to submit Vessel Response Plans (VRPs) to the USCG by 30th January 2014. For the purposes of these plans, non-tank owners are required to pre-contract with Qualified Individuals (QIs), Oil Spill Response Companies (OSROs), Dispersant service providers and salvors. Non-tank vessel owners with a fuel and cargo capacity of 2,500 barrels or greater to carry oil (as defined) are required to enter into Funding Agreements with salvors and marine fire-fighting resources. The requirements for this category of vessels are almost identical to those for tank vessels.

Only five salvors are qualified for the USCG's requirements and they are T&T Salvage LLC, Resolve Salvage & Fire (Americas), Inc, Donjon-SMIT LLC, SVITZER Salvage and Marine Response Alliance LLC. However, there are approximately 15,000 non-tank vessels subject to the new requirements which will undoubtedly present an administrative challenge to vessel operators, USCG and resource providers alike.

Basically, there are three categories among the above five salvors' SMFF Funding Agreements - LOF (with the SCOPIC clause incorporated), BIMCO TOWHIRE and BIMCO WRECKHIRE with reference to the SCOPIC rates plus a 15%-50% uplift.

Take Donjon-SMIT LLC for example:

For Category 1 situations. On the basis of a TOWHIRE 2008 in the format as attached to this agreement in Annex 1, suitably-amended. Personnel and equipment rates will be charged at the rates shown in Annex 5 'Rate Sheet' plus a 20% uplift. Reimbursement of all out of pocket expenses will be on a cost-plus-15% basis only and not subject to this 20% uplift.

For Category 2 situations. On the basis of the WRECKHIRE contract at the Tariff rates in the format as attached to this agreement in Annex 2, suitably-amended, Personnel and equipment rates will be charged at the rates shown in Annex 5 'Rate Sheet' plus a 50% uplift. Reimbursement of all out of pocket expenses will be on a cost-plus-15% basis only and not subject to this 50% uplift.

For Category 3 situations. On the basis of an LOF 2011, with the SCOPIC clause incorporated, in the format as attached to this Agreement in Annex 3 without amendment.

However, T & T Salvage LLC "abandoned" LOF and applies only daily hire basis on TOWHIRE or WRECKHIRE whatever shipowners choose. With no doubt, T & T wins the majority of SMFF contracts. Its market share in tanker is over 40% and the total market share is over 25%. Why? Because it can read Shipowner's mind that LOF is the most reluctant contract to choose from.

2. Regulation of People's Republic of China on Marine Pollution Emergency Preparedness and Emergency Response (Document No: MOC 2011.4)

Sharing the similar concept with the USCG's SMFF, Ministry of Transport of the People's Republic of China set up administrative provisions on Marine Pollution Emergency Preparedness and Emergency Response. It has been put into force since January 1, 2012. According to the provisions, ship owners/operators of (a) any ship carrying polluting and hazardous cargoes in bulk or (b) any other vessel above 10,000 gross tonnage should enter into a pollution cleanup contract with a Maritime Safety Agency (MSA) approved pollution response company before the vessel enters a PRC port. Approved clean up contractors will be categorized by the MSA in accordance with their qualifications and response capabilities and will be assigned level 1, 2, 3 or 4 status. Ship owners/operators will need to contract with an approved clean up contractor in accordance with the size and type of vessel.

The pollution cleanup contract only deals with pollution issue. When a vessel is in a peril and needs salvage services, the provision is silent. In practice, China port authority will not allow any foreign salvor to perform salvage operation. Hence, local salvage company is the only choice. LOF, TOWHIRE and WRECKHIRE may be acceptable in some circumstance depending on shipowner and Hull underwriter's attitude.

VI. MEASURING THE COSTS OF SALVAGE (SALVAGE AWARD)

When a salvage service is rendered voluntarily in the absence of a contract, the court determines the salvage award according to six factors enumerated by the U.S. Supreme Court in *The Blackwall* case. The law, however, does not specify a precise formula or rule for calculating awards on the basis of the *Blackwall* factors:

- (1) The labor expended by the salvors in rendering the salvage service;
- (2) The promptitude, skill, and energy displayed in rendering The service and saving the property;
- (3) The value of the property employed by the salvors in rendering the service and the degree of danger to which such property was exposed;
- (4) The risk incurred by the salvors in securing the property from the impending peril;
- (5) The value of the saved property; and
- (6) The degree of danger from which the property was rescued.

Each factor, however, is not given equal weight. Furthermore, several courts have reversed the order of these factors so that greater weight is given to the value of the salvaged property, which includes both ship and cargo, and the degree of danger in a given situation, thus permitting a more realistic appraisal of the respective costs and benefits to the parties (Force, 2004). Markovits (2008) opines that some law and economics scholars seem to assume that - if the courts make the marine-salvage awards that are the most-allocatively-efficient awards they could make - marine-peril-related misallocation will be eliminated. As the proceed-

ing discussion implies, this optimistic conclusion is unwarranted. In addition to above, it has also been said that the amount of salvage reward is dependent upon the discretion of the court/arbitrator or “what Lord Stowell used to call it, a *rusticum iudicium*”, but this is misleading. Obviously the tribunal must make a decision in the particular circumstances before it. It should take account of those factors which have been recognized as relevant to the assessment of salvage rewards, evaluating them in the light of the particular factors and also of its professional experience of the prevailing practice of assessing salvage rewards (Rose, 2002).

Teitelbaum (2013) used two statistical methods - fractional polynomial regression and regression tree analysis - to make inferences about the mapping from *Blackwall* factors to awards implicit in the salvage cases from 1799 to 2007. The results suggested a ranking of the *Blackwall* factors, in which the three most important factors, in descending order of importance, were the value of the property saved (factor 5), the labor expended by the salvors (factor 1), and the danger to the property saved (factor 6). The three least important factors were the skill displayed by the salvors (factor 2), the danger to the salvors' property (factor 3), and the risk incurred by the salvors (factor 4). Although these factors were consistently from the bottom tier, their order within the bottom tier varied across the results.

According to Article 8 of the Brussels Salvage Convention 1910, the remuneration is fixed by the court according to the circumstances of each case, on the basis of the following considerations:

- (a) Firstly, the measure of success obtained, the efforts and dangers of the salvors, the danger run by the salvaged vessel, by her passengers, crew and cargo, by the salvors, and by the salvaging vessel; the time expended, the expenses incurred and losses suffered, and the risks of liability and other risks run by the salvors, and also the value of the property exposed to such risks, due regard being had to the special appropriation (if any) of the salvors' vessel for salvage purposes
- (b) Secondly, the value of the property salvaged.

The Brussels Salvage Convention largely restated the English law and was not enacted in the United Kingdom. However, the English law of salvage is now subject to the International Salvage Convention 1989.

Predate the 1989 Salvage Convention, Landes and Posner (1978) used a model of contingent payment to show how price was determined efficiently in a rescue market. They rejected the notion, judge-made law in the area of salvage, was based on the notion of fairness and justice. They also asserted that the rules were best explained as efforts to bring about efficient results. This is in some way reflected in the protection the law affords to the parties in respect of agreements made in emergency conditions. They adopted the same criteria in Kennedy's salvage treatise (Rose, 2002). However, Rose and others characterise salvage awards as a form of restitution for unjust enrichment, whereas legal economists such as Richard Posner prefer an ana-

lysis that seeks to explain the evolution of salvage law as progress towards an allocatively efficient use of rescue and safety resources. Moreover, Hallwood and Miceli (2004 & 2005) argue that Landes and Posner's approach, which is based on a hypothetical bargain between the owner of a lost vessel and the salvor, is inappropriate for historically valuable wrecks. Swan (2009) describes these two models for explaining salvage and examine how each can be applied to modern developments in salvage law and in particular the more recent need to reward salvors for their efforts in preventing environmental pollution. Previous editions of Kennedy's have recorded a classification of “material circumstances” to be taken into account in assessing salvage rewards as follow:

A. As Regards the Salvaged Property:

- (1) The degree of danger, if any, to human life.
- (2) The degree of danger to the property.
- (3) The value of the property as salvaged.

B. As Regards the Salvors:

- (1) The degree of danger, if any, to human life.
- (2) The salvors' (a) classification, (b) skill and (c) conduct.
- (3) The degree of danger, if any, to property employed in the salvage services and its value.
- (4) The (a) time occupied and (b) work done in the performance of the salvage service.
- (5) Responsibilities incurred in the performance of the salvage service, such, e.g., as risk to the insurance, and liability to passengers of freighters through deviation or delay.
- (6) Loss or expense incurred in the performance of the salvage service, such, e.g., as detention, loss of profitable trade, repair of damage caused to ship, boats, or gear, fuel consumed, etc.

It reflects the “no-cure no pay” nature of salvage contracts. This economic analysis of salvage awards is reflected in the criteria used in arbitration to determine the amount of salvage. Straightforward jobs with high probability of success generally get smaller payments than high-risk operations. Thus, the criteria for determining awards reflect the outcome that is most economically in terms of the allocation of resources to safety measures and rescue capability (Swan, 2009). However, Markovits (2005 & 2010) points out that the preceding analysis refutes Landes and Posner's claim that the law of marine salvage is consistent with and displays impressive congruence with their hypothesis that the rules of judge-made law are best explained as efforts - however unwitting - to bring about (economically) efficient results. He also delineates the structural deficiencies of the type of argument with which Landes and Posner attempt to establish their conclusion that marine-salvage law is allocatively efficient.

In determining how much a judge or arbitrator should award for pure salvage, several factors are considered under the 1989 Salvage Convention. So does the contract salvage. Both LOF and similar contract form require the salvage award be assessed un-

der the 1989 Salvage Convention's criteria if a fixed cost for the salvage project is not agreed upon. These criteria are:

- (a) Salvaged value of the vessel and other property;
- (b) Skill and efforts of the salvors in preventing or minimizing damage to the environment;
- (c) Measure of success obtained by the salvor;
- (d) Nature and degree of the danger;
- (e) Skill and efforts of the salvor in saving the vessel, other property and life;
- (f) Time used and expenses incurred by the salvors;
- (g) Risk or liability and other risks run by the salvors and their equipment;
- (h) Promptness of the services rendered;
- (i) Availability and use of vessels or other equipment intended for salvage operations; and,
- (j) State of readiness and efficiency of the salvor's equipment and the value thereof.

The amount of salvage awards will vary depending on the facts of each claim. The award, however, can not exceed the total value of the property saved.

The criteria are general principles for a judge or arbitrator to determine the award. Yet, salvage law does not provide the recipe. It provides only a handful of general principles to guide the courts and to delimit their discretion. It is necessary to look at each of the criteria individually. Two matters must be at the forefront of any consideration. First, the concept of "encouraging salvage operation" must be in the forefront of every case. The fundamental principle of "encouragement" is of long-established vintage in salvage law, pre-dating its express mention in Article 13 of the 1989 Salvage Convention which states that the reward must be fixed with a view to encouraging salvage operations, taking into account the specific listed criteria. Secondly, the order in which the criteria is irrelevant in the fixing of the reward (Reeder, 2003). In other words, the salvors should be paid for benefits conferred to the property and the public policy requires such payment to be generous with a view to encouragement of salvors.

The factors listed above are not listed in order of importance and there is no specified formula for determining the award. However, from a public policy standpoint, several of the factors are particularly notable. The second factor encourages the court to consider the salvor's efforts to protect the environment in determination of award. Hess (2013) emphasized and used a simple formula¹ to quantify the minimum salvage award a salvor may expect and put a very heavy weight on the environment factor.

However, there is no quantitative research available on the cost of salvage under different salvage form, nor any precise formula calculating the difference.

An easy way to understand the salvage award is to use a simplified formula:

Salvage Succeeded under LOF

$$\text{Salvage Award} = \text{Property salvaged} * \text{Effort done} \\ = \text{Salvaged values} * \text{Award to values (\%)}$$

Example 1:

A vessel is on fire and her cargo hold is exploding in the open sea. Shipowner has no time to negotiate a fair contract with salvor. LOF is the only choice. Assume: Property salvaged is US\$ 10 million, Award to values is 10%.

$$\text{Salvage Award} = \text{US\$ 10 million} * 10\% = \text{US\$ 1 million}$$

Salvage Succeeded but SCOPIC Invoked under LOF

$$\text{Salvage Award} = (\text{Property salvaged} * \text{Effort done}) - \text{Discount} \\ = (\text{Salvaged values} * \text{Award to values (\%)}) - 25\% \\ (\text{Difference between Article 13 Award or Settlement and SCOPIC Remuneration})$$

Example 2:

Scenario is the same as Example 1. Slavor has no confident to save the vessel. Therefore, he invokes SCOPIC. Assume: Property salvaged is US\$ 10 million, Award to values is 10%, SCOPIC Remuneration is US\$ 400,000.

$$\text{Salvage Award} = \text{US\$ 1 million} - 25\% (\text{US\$ 1 million} - \\ \text{US\$ 400,000}) = \text{US\$ 1 million} - \text{US\$ 150,000} = \text{US\$ 850,000}$$

Salvage Failed and SCOPIC Invoked under LOF

$$\text{Salvage Award} = (\text{Costs occurred} * \text{Effort done}) + \text{Standard} \\ \text{bonus} = (\text{SCOPIC Remuneration}) + 25\% \text{ Uplift}$$

Example 3:

Scenario is the same as Example 2

$$\text{Salvage Award} = \text{US\$ 400,000} + 25\% (\text{US\$ 400,000}) \\ = \text{US\$ 500,000}$$

Salvage under TOWHIRE or WRECKHIRE

$$\text{Salvage Award} = (\text{SCOPIC Appendix A} * \text{Days}) + \text{Uplift (\%)}$$

¹ $EV = \text{probability of loss plus probability of profit} = -100(.2) + 25(.8) = -20 + 20 = 0$, therefore award must be > 125 .
 $EV = -70(.2) + 25(.8) = 6$, therefore at 125 the salvage is profitable. The break-even point under Article 14 would therefore be $-70(.2) + 17.5(.8) = -14 + 14 = 0$ so salvage award must be > 117.5 .

Table 3. Salvage under LOF.

LOF	Example 1	Example 2	Example 3
Salvage succeeded	✓	✓	✗
SCOPIC	✗	✓	✓
Salvage Award	US\$ 1 million	US\$ 850,000	US\$ 500,000

Table 4. Salvage under other contracts.

Non-LOF	Example 4	Example 5
SCOPIC rate	✓	✗
Fixed rate	✗	✓
Extra bouns/Time element	✓	✗
Salvage Award	US\$ 193,750	US\$ 165,000

Example 4:

A vessel's main engine fails in the calm sea and a tow is necessary. TOWHIRE is engaged to apply SCOPIC rate, regardless of property values. A 25% extra bonus is offered if the salvage is done within 10 days. A tug with 5,000 b.h.p. is hired. It takes 10 days to finish the operation. SCOPIC rate is US\$ 15,500/per day as per SCOPIC 2017.

$$\begin{aligned} \text{Salvage Award} &= (\text{US\$ } 15,500 \times 10) + 155,000 \times 25\% \\ &= \text{US\$ } 193,750 \end{aligned}$$

Fixed Price under Other Contract

$$\begin{aligned} \text{Salvage Award} &= (\text{Fixed Rate} \times \text{Days}) + \text{Uplift (\%)} \text{ or} \\ \text{Salvage Award} &= \text{Lump sum price} + \text{Uplift (\%)} \end{aligned}$$

Example 5:

Scenario is the same as Example 4. A tug with a fixed rate at US\$ 15,000/per day is hired, regardless of property values. However, it takes 11 days to finish the operation.

$$\text{Salvage Award} = (\text{US\$ } 15,000 \times 11) + \text{Zero bouns (exceeded 10 days)} = \text{US\$ } 165,000$$

Based on the above, in any circumstances, LOF is the most profitable salvage contract in comparison with any other forms. Salvor will still receive salvage award no matter succeed or fail, the result is just a matter of money – more or less (See Table 3 and Table 4).

VII. CONCLUSION

There are two types of salvage. "Pure salvage" occurs when the salvor is a volunteer. "Contract salvage" occurs when the salvor and the distressed vessel enter into an agreement concerning the salvage effort. The right to be rewarded for salvage at sea under common law is based both on equitable principles and

public policy and is not contractual in origin.

No Shipowner would like to use LOF unless it becomes necessary. Shipowner prefers salvage contract which is calculated on daily rate or lump sum basis, if he still has choices. However, when a vessel is in an urgent and dangerous situation, LOF is the most preferred salvage contract in comparison with other national forms. In the contrary, LOF is the most profitable salvage contract from salvor's standpoint. In the shipping practice, salvor would offer LOF in the first beginning and bargain with shipowner in different scenario. If LOF is engaged, high profit is foreseeable. If not, with other contract form, low profit is also guaranteed.

Every year, whilst engaged on LOF contracts, ISU salvors recover property valued in excess of US\$1 billion. A salvage reward is based on the salvaged values and other criteria such as the skill and efforts of the salvor. Based on the concept of "encouraging salvage operation", salvage awards are intended to be generous in order to encourage salvage efforts and would never be a cheap deal. LOF seems like an "open cheque" for the salvor and the decline in LOF cases is just a matter of time.

In addition, some countries, like China, U.S. and Egypt, Shipowner does not have much choice to select salvor freely under some circumstances, especially when the national governments are involved in pollution issue.

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