

# INSURING LOSS FROM HAZARDOUS SUBSTANCES DURING ROAD TRANSPORTATION IN THAILAND

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## ABSTRACT

*The overturning of a trailer carrying oil, and leakage of all the liquid gas in the tank, created an explosion causing extensive loss of life and property, and damage to the natural environment. This incident occurred in 1990, and is the origin of heightened awareness of the need for insurance for the legal liabilities involved.*

*In 1993, compulsory third party motor insurance was legally enforced in Thailand. This development also reveals an increasing awareness of the need for liability compensation when accidents occur.*

*Accidents involving hazardous substances still happen regularly. Even though the damage is not as great as in 1990, each accident causes suffering and harm. The compensation amount awarded to plaintiffs is very small, the litigation process takes a long time, and environmental harm cannot be entirely remedied.*

*In 2006, based on recommendations from the Committee for Hazardous Substances, within the Department of Industrial Works (DIW), the Ministry of Industry announced that transporters who use tankers for carrying hazardous substances must obtain insurance for legal liability for loss or damage to third parties (with a limit of THB100,000 per person, and a maximum THB10,000,000 per occurrence) plus compensation for environmental harm including clean-up costs. The total limit of indemnity under this policy, combining all coverage is THB30,000,000 per occurrence. This insurance is beyond the limits of liability and cover in compulsory third party motor insurance.*

*Since the promulgation of this legislation for road transportation of hazardous substances, its enforcement has been suspended because of many questions from insurance practitioners and hazardous substances operators.*

*This paper will firstly describe, explain and discuss facts and opinions from insurers and transporters parties about what they regard as imperfect legislation. The issue of compulsory insurance will be discussed. Secondly, the paper will discuss the remedies necessary to alter the situation for emergency response and financial assurance when an accident happens. Finally, three alternatives in risk finance (other than insurance) will be suggested to cope with the loss exposure from road transportation of hazardous substances in Thailand.*

## INTRODUCTION

Chemicals play a major role in various types of industry, and the trend is increasing in Thailand. A report from The Customs Department certifies that the number of chemicals imported, exported or produced grows every year. It is now recognised that a chemical, or a hazardous substances containing it, could create massive damage when it is in the production process, stored in a warehouse, or in tran-

sit. In every process involving hazardous substances, there is a risk which has the potential to cause an accident. When an accident occurs, it can leave extensive damage to property, human life, health, and the environment. That is why chemicals or hazardous substances must be controlled and receive special attention both inside and outside the premises.

A strong concern for the risk of damage by hazardous substances arises firstly inside the premises whilst those substances are in the production pro-

cess or kept in storage as raw material or as the finished product. Subsequently, this concern is extended to potential loss or damage arising outside the premises whilst the substances are in transit. In Thailand, the beginning of awareness of the dangerous effects of hazardous goods during transit was sparked in 1990 by the overturning of a Liquid Petroleum Gas (LPG) tanker at Petchaburi Road, a major business road in Bangkok. The victims of this accident needed compensation, and so they sued Siam Gas, the responsible company. From the date of the accident until the victims received their compensation, took many years, and they have still not received payment as the company faced bankruptcy, and the victims' right to compensation was not protected from being treated as though the victims were ordinary creditors.

The government's first solution to cope with the compensation problem was to turn to motor insurance. Third Party motor insurance was made compulsory from 1993 by the 'Protection for Motor Vehicle Accident Victims Act'. This insurance, although State controlled, is organized by the motor insurers of Thailand. The cover is for death or injury, but not property. It is a no-fault scheme: strict liability (Lawrence, 2004). The concept is to help victims get a quick payment without having to prove negligence. This development of compulsory insurance coincided with the increased use and transportation of hazardous substances, and stimulated the government in 2006 to form a Committee for Hazardous Substances, in the Department of Industrial Works (DIW), within the Ministry of Industry. The terms of reference for this committee were:

*To compel all hazardous substances transporters using tankers to obtain additional liability insurance other than compulsory motor insurance.*

The committee's recommendations were approved by the Minister of Industry and published in the Government Gazette (February 23, 2006) as compulsory insurance for hazardous substances transported by road.

The intention of this government initiative was to further develop compulsory insurance as a tool to solve the bankruptcy problem, and to extend the insurance cover to include environmental impairment. However, the wording was not clear, and insurers

made suggestions for improvement. Also, it met with some disagreement from business operators. The legislators had to postpone the enforcement date for nearly another two years because of disagreements about insurance cover, premium calculation, and the problem of uninsurable risk.

Although three years have passed since the notification's release, it is clear that the regulations were not all-encompassing. Arguments still arise from time to time from both insurance practitioners and hazardous substance operators. The government deserves credit for initiating the discussion about hazardous substance transportation insurance among insurers, hazardous substance operators, and their related associations. Even though a revised wording became law with effect from November 2007, there was still no reduction of the arguments in this compulsory insurance legislation. In June 2009 the law still remains unenforced (the police having been authorised by the government not to prosecute those found to be without this insurance).

The question, therefore, to be addressed in this paper, is whether the current regulations and insurance details are adequate and able to deal with the danger and loss from hazardous substances. A subsidiary question is whether there are alternative methods that could sufficiently deal with accidental losses caused by hazardous substances during transit, and whether such alternatives would be agreeable to both the insurers and operators, while adequately compensating the victims of the hazardous substance.

This paper describes the compulsory insurance product as firstly an issue for hazardous substances in transit. It will provide an update of the discussions among the parties involved with the legislative issue. The paper will provide details of the limitations and problems from the viewpoints of both the insurance practitioner's viewpoint and the hazardous substances operator's. Finally, there is an exploration of other financial aspects beyond traditional insurance.

## **METHODOLOGY**

This is an exploratory and descriptive research study. The methodology is based on a literature re-

view, including conference papers, journal articles, and published statistics. Building on the literature base, semi-structured interviews were chosen as an instrument to gather facts and opinions from insurers and transporters. Interviews were held with 10 managers in the insurance industry in Thailand, including Direct Insurers, a Reinsurer (Thai Reinsurance Co.), and Insurance Brokers. Interviews were also held with 10 managers in the hazardous substance industry, including HASLA (Hazardous Substance Logistic Association), hazardous substance manufacturers, and hazardous substance transporters. The data gained from the interviews was processed to elicit themes, which will be explained and discussed, including the use of displays.

## INSURANCE PRODUCTS FOR HAZARDOUS SUBSTANCES

This section describes insurance products which are relevant to this topic. The insurance products provided in Thailand are quite similar to many Asian countries, in that they are mainly designed to cover the loss exposure of clients according to their risk. For the exposure caused by hazardous substances, we can separate risk into two main categories according to the location of loss: inside the premises, and outside the premises during transit. Accordingly, the purpose of this study concentrates on the new compulsory liability insurance legislation, the insurance products available in Thailand for hazardous substances, and further discussion about insurance for hazardous substances during road transportation. The information has been gathered from the Office of the Insurance Commission, Ministry of Finance, and from conducting interviews with insurance practitioners and hazardous substances experts. Before we examine the established Property Damage Policy, Liability Policy, Motor Insurance Policy, and Environmental Impairment Policy in detail, it should be mentioned that these have exclusion which affect liability cover for hazardous substances, hence the need for a new special policy.

### *Property Damage Policy*

The policies available in the market are Fire insurance, Burglary Insurance and Industrial All Risk

Insurance. Based on the conducted interview, five hazardous substance manufacturers and five transporter companies have insured their property under Industrial All Risk Insurance Policies. The property insured mainly covers buildings (excluding the foundations), furniture fixtures and fittings, and stock of every description.

The major coverage for this policy is to protect the property specified in the policy against any financial loss or damage from accidental fire and named perils, theft, robbery and the like, and other accidental damages, providing that a policy exclusion is not relevant to the circumstances. The policy exclusions are separated into two parts; excluded property and excluded cause.

Excluded causes include:

- Faulty or defective design, materials or workmanship
- Wear and tear
- Interruption of water supply, gas, and/or electricity
- Corrosion and building cracks
- Theft except from a building where there is violent or forcible entry or exit
- Unexplained inventory shortage
- Mechanical or electrical breakdown or derangement of machinery or equipment
  - Wind, rain, hail, frost, snow, sand or dust to movable property in the open or in open-sided buildings, or to fences and gates (Unless such loss is caused directly by damage to the property insured by a cause not excluded in the policy)
- Subsidence or ground heave
- Coastal or river erosion
- Collapsed or cracking of buildings
- Marring or scratching
- War, invasion, act of foreign enemy, civil war
- Acts of terrorism
- The destruction of property by order of any public authority

Excluded property typically includes:

- Money, cheques, jewellery, precious stones
- Fixed glass or other type of glass, such as china earthenware and marble
- Electronic installations, computers and data processing equipment

*But for these three types of property above,*

*it shall not exclude damage caused by fire, plus named perils.*

- Vehicle licensed for road use
  - Property in transit
  - Property damaged while undergoing any process
  - Damage to boilers, turbines and the like resulting from their explosion or rupture
  - Livestock, growing crops or trees
- (The General Insurance Association, 2009)

### **Liability Policy**

From the interviews, it was found that the liability insurance policy which is popular among the group of hazardous substances operators is the Public Liability policy. The manufacturer knows about his liability exposure: but only 3 out of 5 companies have a public liability policy. The main coverage for public liability policy is loss or damage arising from accident to third parties for death or bodily injury and/or property damage, due to negligence by the insured or the insured's employee because of action related to the insured's business and for which the insured is legally responsible.

Another liability policy related to hazardous substances is Carrier Liability Insurance. The main coverage for this type of policy is loss or damage or delay of cargo carried by the carrier. Information from interviews with ten transporters provided details of this type of insurance: only 3 of 10 companies have carrier liability insurance which is enforced by the product owner. The other companies take their own responsibility for any loss or damage due to an accident. The two major reasons for not buying insurance are refusals from insurance companies because hazardous substance is an excluded property in the policy wording and the probability of an accident which damages cargo is rare.

An important concern for these two liability policies is that they exclude environmental damage due to the insured's operations.

### **Motor Insurance Policy**

In Thailand there are two types of motor insurance: compulsory motor insurance (CMI) and voluntary motor insurance (VMI).

Compulsory Motor Insurance (CMI) provides cover for bodily injury only and not for property

damage. The indemnity is based on a "First Aid" concept with the intention of assisting the injured person(s) and/or the family of the deceased without requiring any proof of negligence. The basis of liability is "No Fault" for the cover within the "First Aid" limit. This strict basis of liability facilitates the processing of claims.

The First Aid immediately paid for is;

1) Medical expenses – for the actual amount of medical expenses which the injured person has paid, but up to a limit of Bht 15,000 per person; and

2) Funeral expenses – Bht 35,000 per person. If there is a person who was seriously injured in an automobile accident, who had been admitted to the hospital for medical treatment, and passed away later, the Compulsory Motor Insurer is responsible for up to Bht 100,000 per person.

Voluntary Motor Insurance is a type of insurance in which the insured decides to effect the cover by himself. It will provide cover against financial loss which may arise from:

(a) loss or damage to the insured automobile by some unforeseen and unexpected causes of loss; and/or

(b) legal liability in respect of property damage, and bodily injury of others.

The legal liability section of the Voluntary Motor Insurance can be classified into:

1. Third Party Property Damage (TPPD) which provides cover for property damage to others. Some important exclusions of the third party property damage are that it does not cover damage to property which is under the ownership, care, control, or possession of the insured or any person who lives in the same house with the insured (e.g. while parking your car at your house, you negligently smash into the back of the car owned by your father living in the same house).

2. Third party bodily injury (TPBI) provides cover for accidental bodily injury or death of any third person. It too excludes bodily injury or death to the insured or any person who lives in the same house with the insured

### **Environmental Impairment Policy**

This policy is special designed to cover the liability of the insured for any damage to the environ-

ment or ecological system which results from the insured's occupational activities. The insurance will indemnify the cost of

1. Death, bodily injury, and defective health
2. Property damage
3. Clean-up cost
4. All expenses to restore all natural resource to baseline, or the environmental impairment cost
5. Legal defense costs, as specified in the policy

From interviews with ten insurers, it was found that there are few insurance companies who feel comfortable enough to underwrite and accept this type of risk. It was found that only one insurer has an underwriting guideline from head office to underwrite, calculate the premium, and tailor the policy. One company underwrites this only if it has the Insured's whole insurance account, which means an insured who asks for environmental coverage is a good client, with an acceptable loss ratio, has insured with the company for many years, and place all his insurance with that insurer. The rest of the insurers have no experience as a base for underwriting or accepting this particular type of risk, and the risk also falls under the exclusion list of their re-insurance contract.

## **NEW LEGISLATION RELATED TO ROAD TRANSPORT INSURANCE FOR HAZARDOUS SUBSTANCES**

The initiative of the Committee of Hazardous Substances is an attempt to provide essential support for the logistics system for chemical or hazardous substances. Therefore the committee decided to study the possible loss from hazardous substances whilst in transport from one place to another. They considered the question 'Where a loss occurs, what tools could cope with this problem'. There has been much research into this issue, for example, a risk assessment project in a high risk Province of Thailand (Department of Pollution Control, 2004). Also, research commissioned by the Ministry of Transport (2006) stated that while chemicals or hazardous substances are in transit, the transporter should obtain insurance to ensure compensation for any loss to human life, health, personal property, public belongings, and environmental resources.

Frequency and severity statistics of road transportation accidents is the essential data on which the Committee of Hazardous Substances acts. The final claim payment under compulsory motor insurance was firstly considered, but it was found that the maximum limit for life compensation is too low if the driver who was found to be guilty has no other insurance. Secondly, environmental impairment needs to be covered. Even if a human victim receives quick treatment and proper compensation, this does not apply to environmental resources or public property.

The details of the legislation notifications in 2006 and 2007 stated that transport means only road transportation and does not include railways. Its further provisions are that:

The hazardous substances transporter who carries them in the following tanks must obtain special insurance rather than compulsory motor insurance.

- 1) Fixed Tanks
- 2) Dismountable Tanks
- 3) Tank Containers
- 4) Tank Swap Bodies with Shells made of Metallic Materials
- 5) Battery Vehicles
- 6) Fiber-Reinforced Plastics Tanks or FRP
- 7) Vacuum Operated Waste Tanks

The insurance must cover loss or damage from any reason of leakage, and/or explosion and/or fire of hazardous substances whilst in transit and results in

1. Loss of life or, bodily injury to third parties (with a limit of THB100,000 per person, and THB10,000,000 per occurrence).
2. Third party property damage
3. All expenses to remove, clean-up and clear damage, to diminish loss and restore the environmental resources to be the same as before the accident.

The total indemnity (sum insured) for the combined cover of 1, 2 and 3 purchased by an operator must not be below THB30,000,000 per occurrence.

## **DETAILS OF THE POLICY**

The General Insurance Association (acting for

the Office of the Insurance Commission) in cooperation with HASLA, designed the policy to include the following details of the new compulsory insurance (Ministry of Industry [MOI], 2006).

**Cover**

1. Loss of life, bodily injury, health defect
2. Property damages
3. Environmental damage by paying the cost of removal, clean-up cost, and restoration.

**Limit of indemnity**

The amount has to be chosen by the insured, but must be no less than THB100,000 per person and not below THB10,000,000 per occurrence for coverage 1, and the total limit of all coverage must not be below THB30,000,000 per occurrence.

**Premium Rating**

Minimum 0.05% to maximum 2% of the limit of indemnity

(Source: GIA, 2007)

**PROBLEMS AND LIMITATIONS**

The government realizes that an extensive loss may occur and affect people, public property and the environment. Perhaps the government should apply this idea other Ministries (e.g. Ministry of En-

ergy, Ministry of Agriculture and Cooperatives, and Ministry of Public Health) and ask cooperation from all relevant sectors. From the study, the legislative notification of 2006 is limited to hazardous substances operators under the control of the Department of Industrial Work (DIW), Ministry of Industry. In contrast, the statistical record for motor accident shows that the number of accidents resulting from hazardous substances transportation is mostly for class 3 Flammable liquid and Class 2 Gas. These two classes are not under the control of DIW. That is why the law, in its present state, cannot be enforced on the operators of these two types of hazardous substance.

The following table shows data for the number of accident, by type of chemical, for each five-year period from 1978 to 2007.

Moreover, statistics from the Ministry of Transport as at September 30, 2007, show that for the number of vehicle used to carry hazardous substances, vehicles transporting diesel had the highest volume, with 1,188 units, followed by LPG with 275 units. These two chemical are not under the control of DIW.

From the viewpoint of the insurance practitioner, problems with the 2006, 2007 legislation are found in terms of insurable risk, volume of exposure

**Table 1: Accident Data for Each 5-year Period, by Type of Chemical**

Chemical Type	Year/ number of accidents						Total
	1978-1982	1983-1987	1988-1992	1993-1997	1998-2002	2003-2007	
Explosive	3	2	3	1	2	2	13
Gas/ Flammable liquid	0	1	2	2	5	61	71
Ammonia	0	0	1	3	4	23	31
Corrosive, Acid	0	0	1	1	8	10	20
Paint, Thinner	0	0	1	5	2	4	12
Hazardous waste	0	0	0	0	1	6	7
Other chemicals	0	1	4	5	13	14	37
<b>Total</b>	<b>3</b>	<b>4</b>	<b>13</b>	<b>17</b>	<b>35</b>	<b>120</b>	<b>185</b>

Source: data from www.chemtrack.org (2008)

unit, insurable loss, and premium charge. Insurance is based on the law of large numbers. If the volume of exposure units is not large enough to be statistically valid, then probability predictions of the possible outcome are dubious, and thus an insurer could risk not having a sufficient fund from which to pay victims, and would have to use money from other accounts. At present the number of tankers required to buy insurance is only 2,000: the premium charged per tanker is about THB10,000. It is not worth accepting this particular risk. Let us think about the number of insurer participating in the program compared with the number of tankers insured. The proposed insurers are 20 companies. If one company will accept insurance of, say, 100 tankers, the premium collected will be 1 million Baht. Unfortunately, a major accident could mean that the insurer must pay the maximum limit of indemnity - 30 million Baht. The company will make an overall financial loss that year.

The next problem is non-standard risk. The government legislation requires tanker transporters, who meet the criteria, to buy insurance. But if that tanker is not certified to be a standard tanker by an authorized person, then the insurance cannot accept this particular type of risk as it is non-standard. The implication is that a non-standard tank has high potential to leak and create an extensive loss. It conflicts with the insurance concept that the insurance company accepts risk based on accidental fortuitous events.

The next problem for an insurer is uninsurable loss. As mentioned concerning the environmental liability product, many insurance companies have difficulties in providing this particular coverage. Many insurers have only a limited knowledge about underwriting risks of hazardous substances, and also little experience of underwriting environmental damage. Some companies are restricted in accepting risks in which the occupation involves hazardous substances, and cannot accept the risk of environmental impairment. For companies that can insure environmental impairment, they do not prefer to follow the policy wording and rating guideline provided by the government: they want to use their own risk-identification guidelines and create their own risk assessment, and certainly want calculate the premium based on their own criteria, data, and probability

calculations.

This brings us to the problem about premium. This problem will be discussed from the insurer's viewpoint and then from that of the hazardous substances transporter. From the interviews, we found that insurers can be divided into two groups: 20% have experience of environmental liability risks; and 80% have no such experience. One half of the 20% groups have an underwriting manual which includes premiums, while the other half quote a premium by considering the whole of an Insured's portfolio. The first half inform us that the premium rating is about 50 percent higher than the premium indicated by the government, with high deductibles which they feel is appropriate to the risk character. The second half have no views about the current premium charge even though the company has claims experience in clean-up and restoration costs. The reason for this indifference is that, overall, the company still makes a profit from this account. However if a new client insures with that company, the premium rate will not be the same as for the existing insured: it should be higher. This company agrees with the other 80% that the premium indicated by the government is not attractive. Moreover the premium rate should apply to turnover, not to the limit of indemnity.

Form the viewpoint of the hazardous substances operators, it is felt that the premium proposed by the insurers is not appropriate. It does not reflect the real characteristic of the risk and is too high. The operators feel that the premium payment will increase their expense costs because they have to pay for motor insurance initially. The claim amount did not exceed the maximum limit for the liability section and material damage section under motor insurance, and did not exceed 5 million baht in environmental damage. The committee of HASLA (Hazardous Substances Logistic Association) provided information to be used as an idea for premium calculation, by characterizing risk factors as below:

1. The qualification of chemical or hazardous substances; loss exposure based on the chemical's qualification which is defined by NFPA(National Fire Protection Association) divided into three categories; Flammability, Affect on health and Reactivity.

2. Tolerance of pressure of tanker, following the tanker code; this means that the tank code is defined to match the qualities of the chemical. There-

fore the insurance company needs to check that the tank code is correct for that chemical type. A tanker code is based on trust that the tanker is strong enough to store the particular type of chemical inside, because a tanker must be tested by a professional before a code is assigned.

3. Quantity of chemical stored inside the tank: the more quantity of chemical, the more potential to create loss

4. Risk Management; the operator who practices good risk management should be recognised by a reduced premium. HASLA also provided the idea that risk management will benefit both insurance companies and the hazardous substances group, because an operator who works only on standard practice will be ejected from the group and should be charged a higher premium or have the insurance proposal rejected.

Additionally, the operators want to know if there is any other alternative rather than traditional insurance to solve the problem of insolvency. The operators feel that their traditional insurance is enough, and the new legislation seems to duplicate coverage with existing insurance. The operators agree that according to historical data on claims cost or liability compensation as requested by the government, they are able to absorb the loss by themselves in excess of the compensation paid by an insurance company. Some operators reserve the money for this in the company accounts for paying losses when an accident happens. The next section of this paper, therefore, deals with the pros and cons of insurance and the consideration of financial alternatives.

## FINANCIAL ALTERNATIVES

In the previous section we explored the insurance product which is applicable to hazardous substances transported by road in Thailand including the new compulsory insurance announced by the government. Then, we compare the coverage of existing products with the new product in order to decide whether the viewpoint of the hazardous operators is correct or not. The following table shows the relationship between loss exposure and the insurance product which matches that exposure.

This table shows that the new insurance product will cover the possible exposure predicted by the DIW committee. Therefore the insurance does not duplicate existing cover as the product extends liability coverage beyond that of motor insurance. However if we consider the number of accidents where the hazardous load is class 3 flammable liquid, this enforcement provides too much cover. Then other financial alternatives should be considered. From interviews, we found that insurance companies are not happy with premiums and policy coverage, and the hazardous substances operators have the same problem – but from opposite sides. So we would like to suggest several alternatives.

1. Continue to use insurance as a financial tool to solve the insolvency problem, but the insurance must adjust the indemnity to fit the client's need. The way to know the client's need is to conduct a risk assessment at the insured site.

2. Operate risk pooling among the hazardous substances group under the control of DIW. All operators could make an agreement to share their risks by contributing an amount of money to the pool, and setting up a group compensation fund. They should appoint a fund manager and committee. In the case of a member faced with the problem of accidental leakage of a chemical during transportation, that member could borrow money from this fund and return it later, plus interest.

3. Each operator should purchase a bond to guarantee his payment when any accident occurs. This concept is like municipal bonds. The concept was described by White (1999) as a type of economic instrument. A further study should examine these three alternatives in detail.

## CONCLUSION

Government intervention into the insurance field is usually not beneficial, other than to regulate the industry so that there will always be money to pay claims (Skipper, 1998). But sometimes government intervention is for the wider public good (Lawrence, 2005). Liability insurance for hazardous substances during road transportation was initiated by the government for the public good (*pro bono publico*). The intention is to provide an adequate amount of

**Table 2: Various Loss Exposures for Various Insurance Policies**

(✓ means covered and ✗ means not covered)

Loss exposure from Insurance transport of hazardous substances	Motor Insurance		Legal Liability Insurance		Liability Insurance for hazardous substances on Road
	Voluntary Motor Insurance	Compulsory Motor Insurance	Carrier Carrier Insurance Transportation	Public Liability Insurance	
Damage to cargo	✗	✗	✓	✗	✗
loss or damage to the insured automobile including every description of attachment and packing of hazardous substances	✓	✗	✗	✗	✗
Loss or damage to the person in the Insured Vehicle – this includes the driver, the passengers who are in that vehicle and anybody who is getting on or getting out of that vehicle	✗	✓	✗	✗	✗
Third party liability	✓	✓	✓	✗	✓
Environmental Liability	✗	✗	✗	✗	✓

compensation to various classes of victim, with a reduced time to process proof. In the future this policy may become like compulsory motor insurance which provides first aid to victims. The Committee also believes that this insurance will be able to minimize the insolvency problem of hazardous substances operators. Additionally, the Committee is also concerned about damage to the environment, natural resource and the ecological system.

If we retain the concept of proper compensation of victims, this initiative should be adjusted and reconsidered to suit all parties. A deeper study is required in terms of product, premium calculation, and evaluation of claim costs, especially for environmental damage.

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